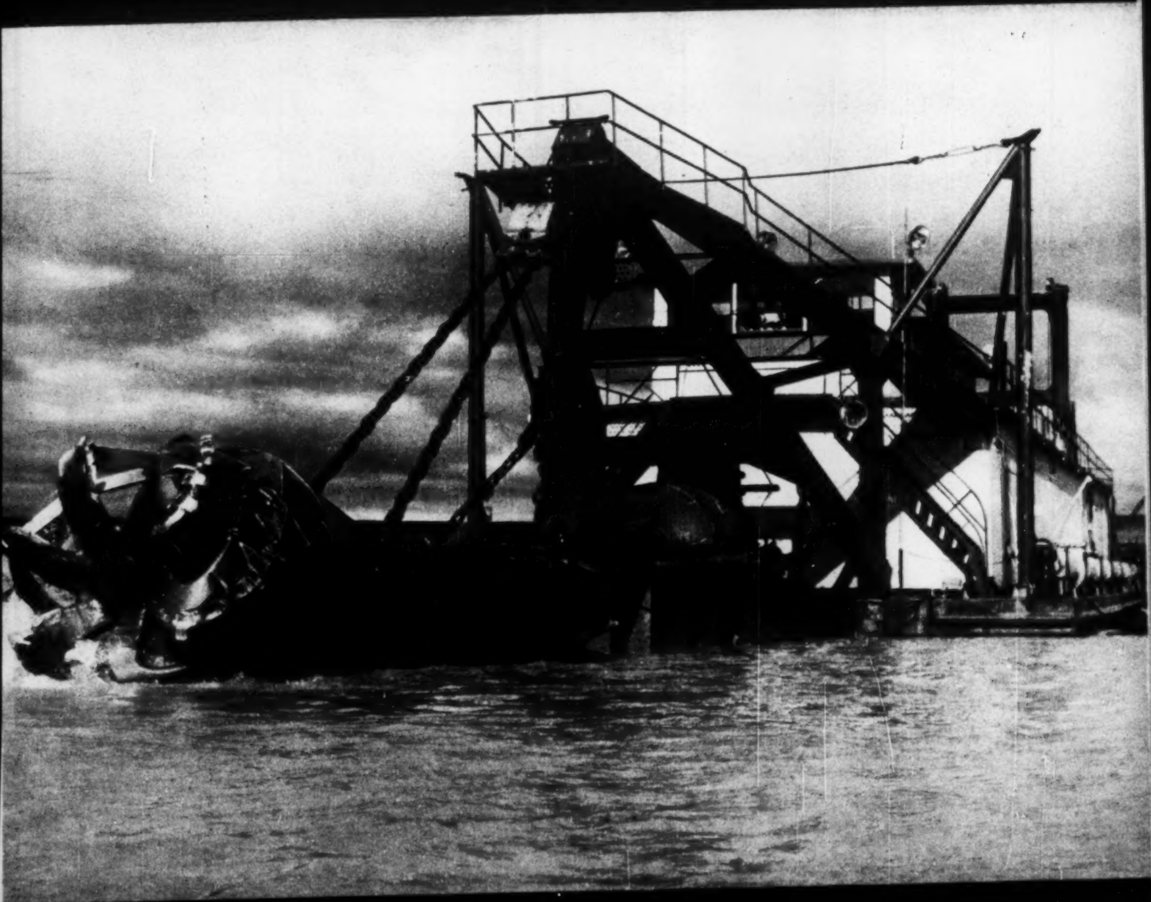
# ENGINEERING NEWS-RECORD



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A McGRAW-HILL PUBLICATION

**PACIFIC TELEPHONE AND TELEGRAPH BUILDING—(1925)** Hot and cold water supply, vacuum and fire lines, drainage, drinking water and pump lines.

**PACIFIC GAS AND ELECTRIC BUILDING—(1925)** Cold water supply and fire lines.

# In these San Francisco skyline structures

## maintenance is kept "down to earth" with

# Byers Wrought Iron Pipe

Although the designers of these eye-appealing San Francisco skyline buildings had different ideas on architectural treatment, they followed the same proven practice in safeguarding against premature failure and excessive maintenance by specifying genuine wrought iron for corrosive services. The photograph captions tell the story of the selective use of this time-tested material, and the wide variety of services it protects. Proof of the wisdom and soundness of these specifications is evidenced by the outstanding durability records established by the material since installation.

The reason for the unusual durability of genuine wrought iron comes from its unique composition. Tiny threads of glass-like silicate slag, threaded through the body of high-purity iron, halt and disperse attack, and so discourage local pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

You'll find some helpful information in our bulletin, WROUGHT IRON FOR PIPING SYSTEMS. Write for a copy.

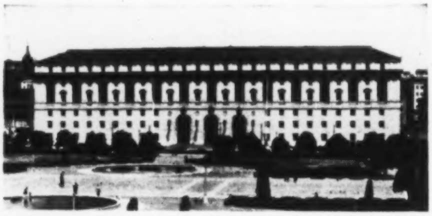
A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

**BALFOUR (GUTHRIE) BUILDING—(1920)** Plumbing and heating.

**ROYAL INSURANCE BUILDING—(1909)** Hot and cold water lines.

**STANDARD OIL BUILDING—(1923)** Steam, return and water piping; roof leader lines, soil and waste lines 2" and larger; vent lines 4" and larger, 3½" and smaller; vacuum lines; gas piping; hot and cold water lines.

**STATE BUILDING—(1923)** Heating, cold and hot water supply, vacuum and fire lines, drainage and vents.



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**WROUGHT IRON**

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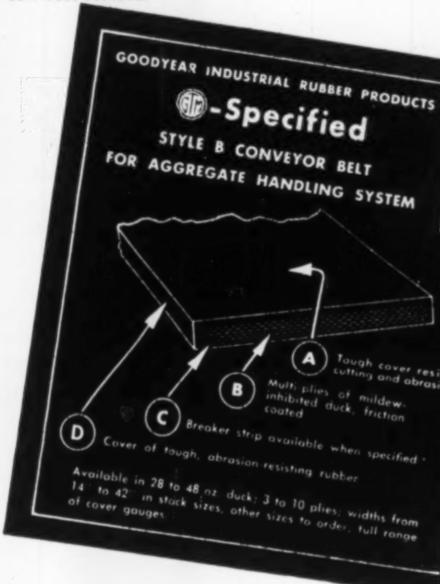

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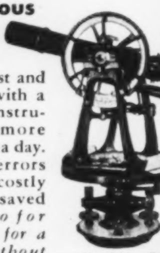

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# ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 DECEMBER 20, 1951 No. 25

WALDO G. BOWMAN
**Editor**

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Number of copies of this issue printed, 51,230

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**Foreign News Bureaus**—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
**Publisher**

**December 20, 1951** **ENGINEERING NEWS-RECORD** **Vol 147—No. 25**
**Member ABC and ABP**

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

**Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., N. Y. 18, N. Y.** Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

**Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 18, N. Y. Allow ten days for change of address.**

**Please indicate position and company connection on all subscription orders.**

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A. Copyright 1951 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

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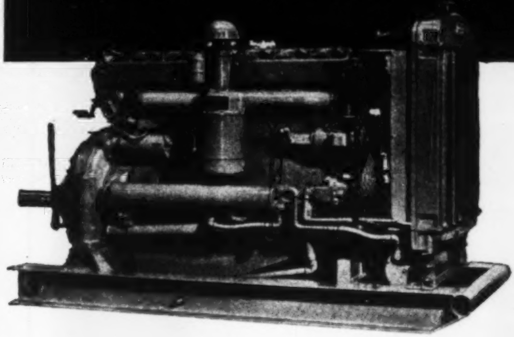

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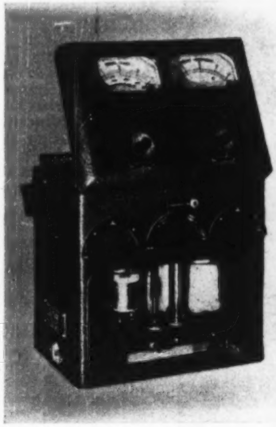

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**AUROCHS AIR** — For portable air compressors, jackhammers, rugged industrial and construction work. Smooth, black, non-porous tube resists heat and oil. Carcass: multiple ply, rubber-impregnated, rugged woven fabric. Tough black cover resists weather and abrasion. Stocked sizes: ½", ¾", 1". 200 lbs. working pressure. Maximum length 50'.

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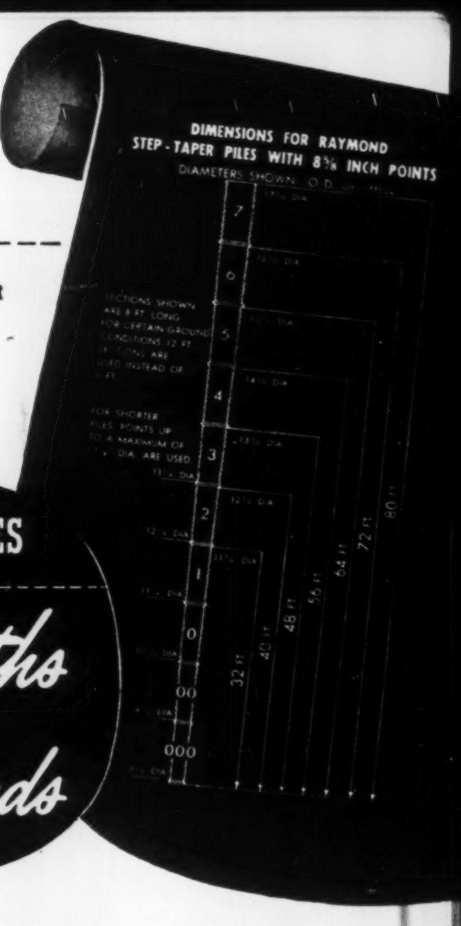
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7
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SECTIONS SHOWN ARE 8 FT. LONG FOR CERTAIN GROUND CONDITIONS 12 FT. SECTIONS ARE USED INSTEAD OF 8 FT.
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FOR SHORTER PILES POINTS UP TO A MAXIMUM OF DIA. ARE USED
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32 FT
40 FT
48 FT
56 FT
64 FT
72 FT
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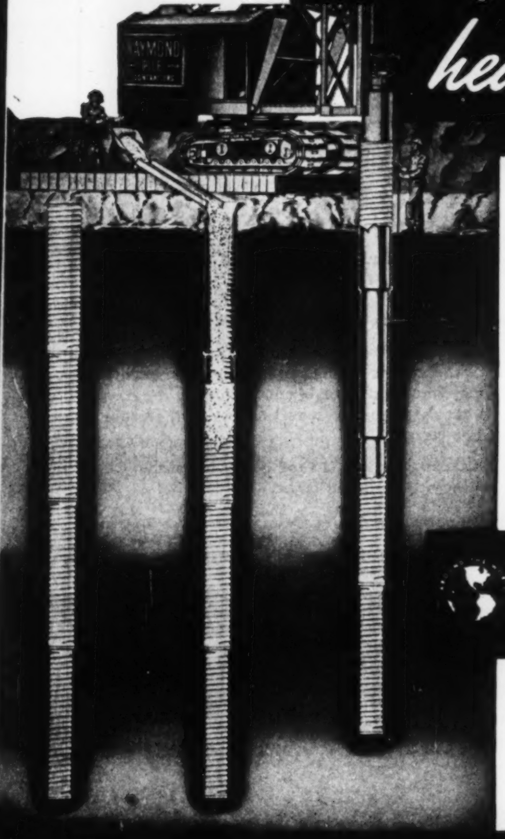
*At left, completed Step-Taper Pile. Center, filling the permanent steel shell with concrete after internal inspection. Right, driving the pile with rigid core.*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Raymond Step-Taper Concrete Piles driven with rigid steel cores and heavy hammers are designed to develop high load-carrying capacities at depths to 80 feet. The permanent steel shell maintains the resistance developed during driving. After the shell is inspected internally, it is filled with concrete and cut off at the specified elevation.

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**Sectional Plate Arches • Corrugated Metal Arch-Pipe • Sectional Plate Arch-Pipe**
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# READER COMMENT

## Why prestress?

Sir: Jacob Feld's letter re "watchmaking prestressing" (ENR Oct. 11, 1951, p. 49) strikes a most refreshing note in the midst of the dither over prestressed concrete. Certainly it is wonderful to so compress concrete that subsequent tensile stresses are low or non-existent, but what does it cost to do it?

The Walnut Lane Bridge contract price was $698,383 (ENR Nov. 3, 1949 p. 18). Its spans are 74 ft.-160 ft.-74 ft., its breadth overall "about 64 ft.", its concrete depth is 7 ft. at the curbs (ENR Dec. 30, 1948). Its cost, therefore, based on these overall figures is $35.43 per sq. ft.

King County, Washington, recently built a reinforced concrete box girder bridge of 1182 ft. overall length, 29 ft.-6 in. overall breadth with spans west to east: 6 at 80 ft., 117 ft., 160 ft., 117 ft., 3 at 80 ft. Abutment and pier structures account for the additional length. These spans are continuous in sets of 3. The main river spans are 7 ft. deep and it will be noted the side spans are longer than those of the Walnut Lane Bridge. The westerly pier of the 160-ft. span required piles to reach firm bearing and to the west of that practically the entire structure required composite concrete-timber piles 70 ft. long. Its contract price was $349,246. Its cost, therefore, based on overall dimensions, was $10.02 per sq. ft. This was not a wild bid. The second bidder was only $8300 higher than the low man; the third bidder, $10,900 higher.

So why prestress a very special and individual structure like a bridge? Why not keep the money and buy a second bridge?

HOMER M. HADLEY  
*Consulting Engineer*  
*Seattle, Wash.*

## Praise for city engineer

Sir: I have read with considerable interest your stories regarding Topeka, Manhattan and Lawrence, in the recent flood disaster in Kansas, but feel that our city engineer, J. O. Armstrong, in his modesty, has not told you that the city of Kansas City, Kansas, was hit much harder and suffered much greater loss than any other midwestern city.

Mr. Armstrong is perhaps in a different position from most engineers affected by the flood, since he is also the chief of the engineering division of our Civil Defense organization. This organization was placed in charge of flood defense and cleanup.

J. O. ARMSTRONG, Kansas City, Kan.

Prior to any thought of a flood, Mr. Armstrong and his office had compiled a list of trucks and equipment for the Civil Defense setup. With the flood threat, his office started at once to dispatch these machines into the danger areas, and this action played an extremely important part in what proved to be the most successful evacuation ever accomplished by as large a group of people in as short a time. Mr. Armstrong next went into the diked areas and started organizing sandbagging operations at the low points. When the water broke over, he was ready to move equipment to the vital points promptly.

Mr. Armstrong, in the meantime, acted as the liaison between the Army Engineers and all of the other city departments. They envisioned the aftermath of the flood when millions of tons of silt and debris would have to be moved before the people would be able to get into their homes and their places of business. This enormous task was handled by the Corps of Army Engineers, and Mr. Armstrong was very high in his praise of the way they handled it.

Splendid as their efforts were, however, there had to be a time limit established when they would withdraw, leaving the continuation of the cleanup in the hands of the city itself. Again Mr. Armstrong and his engineering division inherited the job which unquestionably will take months to complete. His crews are working at this moment attempting to repair broken-up streets, caved-in sewers blocks long. They rehabilitated our pump houses; repaired approaches to our bridges and opened up crosstown highways.

To top these headaches, the question of what to do with the evacuees

(*Continued on page 14*)

Georgia Power Co. USES Borden All-Weld Gratings

floor gratings

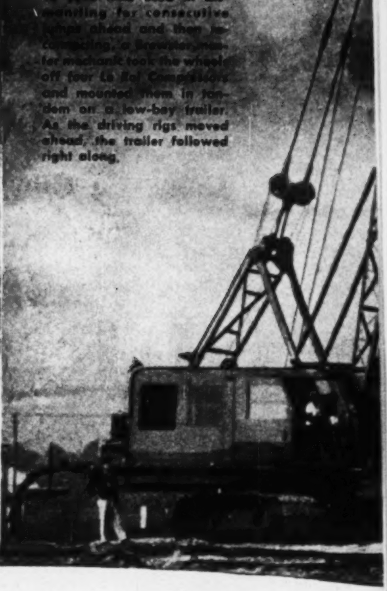
- best type for use where floors are subject to extreme moisture or corrosion.
- no cracks, open joints, or holes in bars

BORDEN METAL PRODUCTS CO.
ELIZABETH, N. J.
Southern Division — Leeds, Ala.
Main Plant — Union, N. J.

**LE ROI**

# Le Roi gives you more for your MONEY!

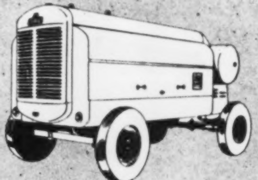
## more air power
## more footage
## more profits



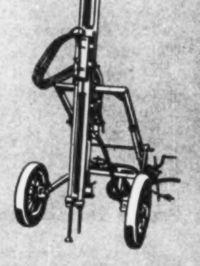
To save time used in dismantling for consecutive jumps ahead and then reconnecting, a Brewster master mechanic took the wheels off four Le Roi Compressors and mounted them in tandem on a low-bay trailer. As the driving rigs moved ahead, the trailer followed right along.

# Dependable, daily, 24-hr.

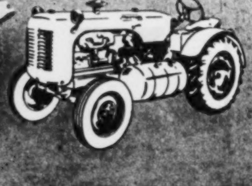
**Why Le Roi Airmasters produce more air for less money:** 10 to 30% lower piston speed for less wear, longer life, lower fuel consumption . . . a heavy-duty engine designed especially for compressor service, not just an automotive unit slowed down — that's why Le Roi Airmasters stay on the job longer, produce more air for less. Sizes from 60 to 600 cfm.



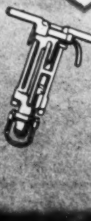
**Why Le Roi-CLEVELAND Wagon Drills cut deep-hole costs:** — 4-inch bore, powerful force of blow, strong rotation, and thorough hole-cleaning action. Higher drilling speed with big bits. You can drill at any angle — put your holes where you want them for better breakage, lower costs. For shallow holes the new lightweight DR34 unit is your best bet.



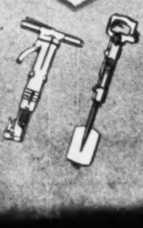
**Why multi-purpose Tractair saves you money:** Tractair is a tractor-105 compressor unit that can be equipped with a wide variety of attachments. This single unit can do the work of specialized expensive equipment — loading, lifting, backfilling, snow-plowing, etc. — as well as breaking, drilling, digging, and tamping. Keeps your initial investment down, your job costs low.



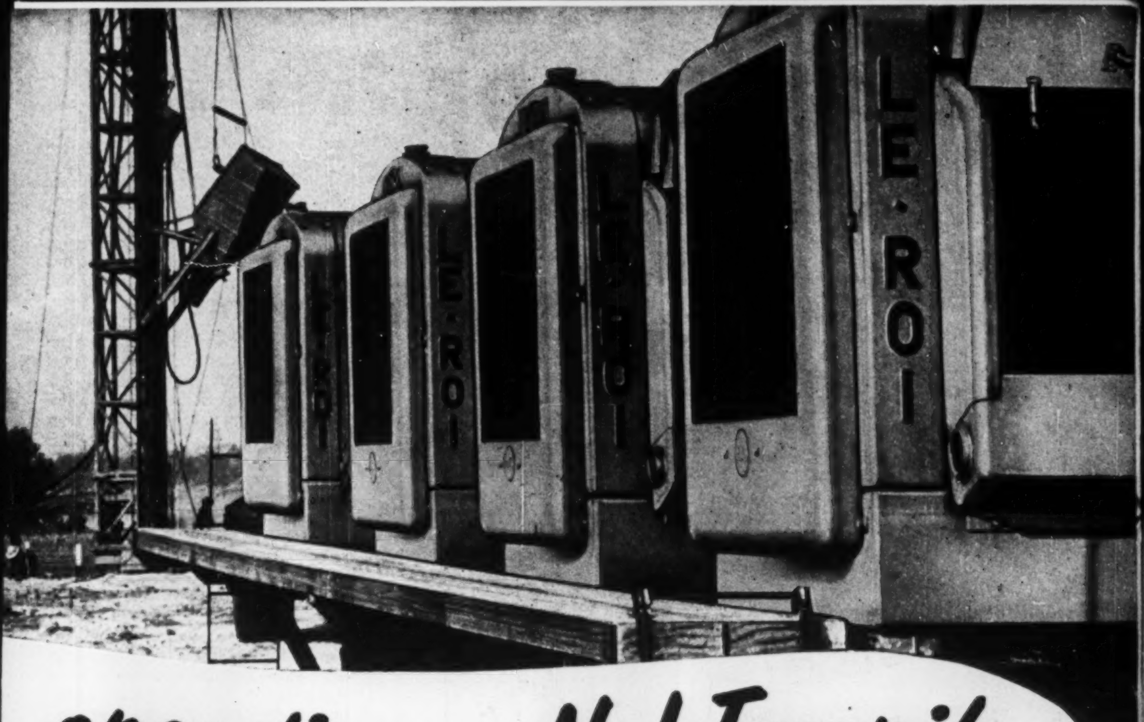
**Why Le Roi-CLEVELAND Sinkers drill more feet per shift:** Strong rotation, and powerful blow from snappy valve action. Drill more inches per minute. Easy to hold, kickback is reduced. Operators are less tired, drill more feet per shift. Sizes 17 to 82 lbs., including the popular H10 and H111.



**Why Le Roi-CLEVELAND Breakers and Spades do more work:** Plenty of wallop for speedy work in the hardest concrete or stiffest clay. Protective air-cushion in front-end assures long life. Well-balanced for easy handling. That's why operators like them — do more with them. Sizes 18 to 80 lbs.



*Team-up with Le Roi for Lower Costs*



# operation on N.J. Turnpike

## George M. Brewster & Son, Inc., uses Le Roi 600 cfm Compressors to supply air for sand-drain driving rigs

They wanted speed in driving 3,825,000 lin. ft. of vertical sand drains on the New Jersey Turnpike. And George M. Brewster & Son, Inc., by far the leading contractor on New Jersey Turnpike sand-drain operations, used 12 Le Roi's to help them get it. These compressors furnished a dependable supply of air 24 hours a day to power the pile drivers and to apply the pressure needed to force sand into the marshy ground.

Le Roi Compressors have paid off with money-saving performance on tough jobs all over the country — paid off with greater dependability, lower fuel and oil costs, and less maintenance.

To get the most out of your Le Roi Compressors, team them with Le Roi-CLEVELAND Rock Drills or Paving Breakers. Then, you've got a working combination that holds job figures down to the lowest cost per foot of hole.

Have your nearest Le Roi distributor show you this rock drill and compressor team at work. See for yourself why Le Roi equipment gives you more for your money.

C-131

LE ROI

**LE ROI COMPANY**

MILWAUKEE 14, WISCONSIN

PLANTS: MILWAUKEE • CLEVELAND • GREENWICH, OHIO

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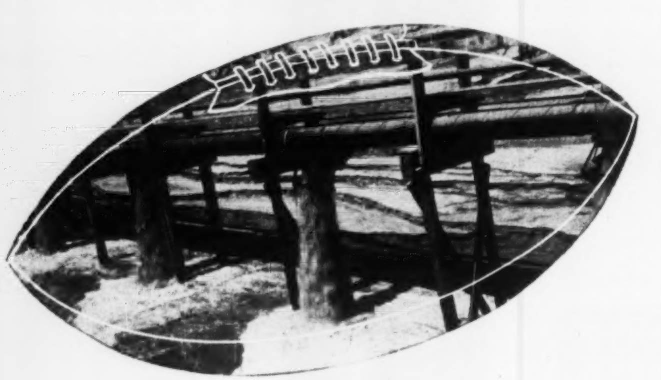
NAYLOR PIPE

....Light in Weight,
but ALL-AMERICAN in the Line



No wonder Naylor Pipe is the choice among contractors for dependable performance, day in and day out.

Backing up this all-star line is Naylor's exclusive Lockseam-Spiralweld structure which provides the extra strength and safety so important in construction.

When you combine this distinctive lightweight pipe with Naylor's one-piece, positive-type Wedge-Lock couplings, you have teamwork that produces the results you want.

Write for bulletin No. 507 describing Naylor Pipe, and bulletins No. 513 and No. 514 covering the Naylor Wedge-Lock couplings.

**NAYLOR Lines cover the field**—High and low pressure air lines; high and low pressure water lines; ventilating pipe; cement pumping pipe; dredging pipe; hydraulic sluicing pipe; de-watering and drainage pipe; sand and gravel conveying lines; well-point systems; composite piling; and exhaust and intake piping.

NAYLOR PIPE

**Naylor Pipe Company, 1248 E. 92nd St., Chicago 19, Ill.**
**New York Office, 350 Madison Avenue, New York 17, N.Y.**

(Continued from page 11)

who were housed in our schools came up for consideration. Conferences with federal officials determined that trailer housing could be provided if we could choose a site acceptable to the government and guarantee sanitary and utility services.

Once again Armstrong and his engineering division inherited what became, in our estimation, one of the best handled operations of the entire disaster. Frederic Robinson, resident engineer of the Bartholomew Planning Company of St. Louis used some of his topography maps for the first plans for the trailer camp. Then, final plans were completed in four days so that contracts could be awarded. This required more burning of midnight oil, but one week after the plan had been conceived a subdivision for one thousand trailers was under way. We of Civil Defense challenge any engineering division to complete a project of this type in as short a time.

In a disaster such as ours there are all types of new agencies and organizations which spring up and get into the picture—whether federal, state or otherwise—but in each instance it always befalls the engineering division to supply them with the necessary information before their plan can be put into effect. It is for that reason that perhaps we of the office of Civil Defense in Kansas City, Kansas can publicly acknowledge, through your magazine, the magnificent work performed by Mr. Armstrong and his engineering division during the flood, the cleanup and the rehabilitation period which will go on for months.

Roy S. Moulton
*Coordinator, Civil Defense*
*Kansas City, Kansas*

## Engineer shortage exists

Sir: The October 15th report of the Minneapolis-St. Paul State Employment Service office seems to belie the statement of Mr. J. C. MacMillan (ENR Oct. 18) that "we in this area are not having any trouble securing qualified engineering personnel. . . ."

As of that date, there were unfilled jobs for 67 engineers, with civil and electrical salary ranges to $600 and chemical to $625. Minneapolis-St. Paul employers were willing to hire engineers up to 60 years old.

The engineering manpower shortage is very real indeed, and is not confined to specific pressure areas or esoteric phases of engineering, as Mr. MacMillan implies.

H. H. Harris,
*Public Relations Director*
*Amn. Fed. of Technical Engineers*
*Washington, D. C.*

# 8

## sound reasons why there is no substitute for

# STRUCTURAL STEEL

The structural steel experience and facilities of this 43-year old organization are available to you any time, anywhere.

**STRENGTH**

The world's most widely used material has the ability to withstand enormous pressures and strains.

**UNIFORMITY**

Precise specifications and constant chemical and physical tests assure unvaried uniformity.

**ADAPTABILITY**

Steel frame buildings lend themselves to new uses and changing needs thereby giving long life to structures.

**FIRE SAFETY**

Steel will not burn. There are no structures more inherently fire-safe than the modern skyscraper built with a steel frame.

**VERSATILITY**

The great variety of standard shapes and dimensions enables structural steel to be used for any structural problem.

**ERECTION SPEED**

Steel frame construction proceeds swiftly because every member is a finished product ready to be placed in the structure.

**SALVAGE**

Because steel retains its strength and dependability, it can be economically removed for use in new structures and [illegible]

**ECONOMY**

All these features combine in saving money for the builder and the owner.

**Fort Pitt BRIDGE WORKS**

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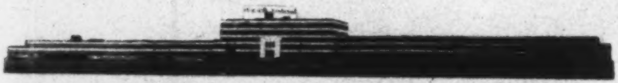
"Steel Permits Streamlining Construction with Safety, Endurance and Economy"



**Sunshine Biscuits, Inc., Kansas City, Kan.—Architects: Engineering Dept., Sunshine Biscuits, Inc.**
**General Contractors:** Swenson Construction Co., Inc.
**Electrical Contractors:** J. H. McKay Electric Co.

**First National Building, Tulsa, Oklahoma**
**Architects:** Carson and Lundin
**General Contractors:** Manhattan Construction Co.
**Electrical Contractors:** J. Livingston and Co.

**The Mutual Life Bldg., New York, N. Y.**
**Architects:**
Shreve, Lamb and Harmon Associates
**General Contractors:** Turner Construction Co.
**Electrical Contractors:** Lord Electric Co., Inc.

**Statler Center, Los Angeles, California**
**Architects:** Holabird and Root and Burgee
Associate: William B. Tabler
**General Contractor:** Robert E. McKee General Contractor, Inc.
**Electrical Contractor:** Stetson Electric Company

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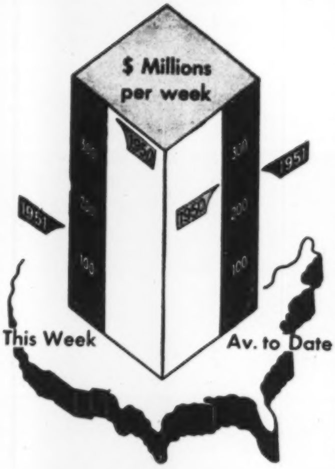
# THE CONSTRUCTION WEEK



**Contracts by type of work**

| | This Week | Cumulative 51 wks 1951 | 1950 | % chge |
|---|---|---|---|---|
| Waterworks. | $5.4 | $206.5 | $213.7 | −3 |
| Sewerage ... | 7.5 | 329.8 | 286.1 | +15 |
| Bridges .... | 6.1 | 314.5 | 364.4 | −14 |
| Highways .. | 14.9 | 1,152.6 | 1,247.0 | −8 |
| Earthwork, Waterways. | 5.9 | 503.2 | 4,151.4 | +21 |
| Buildings: | | | | |
| Public .. | 23.7 | 2,036.0 | 2,387.1 | −15 |
| Housg., pub. | 2.7 | 628.4 | 347.5 | +81 |
| Housg., priv. | 19.5 | 1,985.3 | 3,104.4 | −36 |
| Commercial | 6.0 | 594.0 | 962.2 | −38 |
| Industrial.. | 27.9 | 4,072.6 | 1,661.0 | +145 |
| Unclassified . | 19.1 | 1,609.0 | 1,251.6 | +29 |
| **Total .....** | **$139.0** | **$13,431.9** | **$12,240.4** | **+10** |

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

**ENR COST INDEX**

| Index Base = 100 | 1913 | 1926 | 1949 |
|---|---|---|---|
| Constr. Cost. Dec. '51 | 547.67 | 263.26 | 114.81 |
| Bldg. Cost... Dec. '51 | 405.58 | 219.24 | 115.29 |
| **Volume .... Nov. '51** | **404** | **164** | **117** |

The Wage Stabilization Board opened its first hearing on alleged violation of wage ceilings—charging Hedin Construction Co., Inc. overpaid bricklayers (p. 23) . . . Structural steel allocations for the first quarter of 1952 will speed industrial expansion (p. 24) . . . Army Engineers have mapped a new flood control plan for the Kaw River Basin (p. 25) . . . Seventy-five tons of structural steel framework collapsed in Philadelphia (p. 26) . . . Changes in design of the $350-million The Dalles Dam were announced (p. 27) . . . Ace trouble-shooter takes on defense housing (p. 28) . . . Laboratory handling of radioisotopes brings new problems in construction—here are some of the answers (p. 30) . . . New long-span, high-ceiling Quonsets hold a few ideas for expansion of manufacturing plants (p. 34) . . . The world's most powerful suction dredge has an exciting inside story (p. 36) . . . Pushing a highway through rugged Canadian wilderness is no picnic (p 41) . . . Multi-million dollar refineries slated for construction in India (p. 48) . . . Dallas contractors hit controls (p. 52) . . . NLRB takes new action against the closed shop (p. 65) . . . Industrial building is breaking all records (p. 67).

**AID FOR CONTRACTORS**—General contractors and engineering firms working on projects that contribute to the national defense effort can now apply to the Facilities and Construction Bureau for special assistance in getting construction equipment. The National Production Authority last week designated it as claimant agency for firm's needing priority help in procuring equipment for planning, administration or construction of defense production projects. Even builders of commercial and institutional structures authorized under the Controlled Materials Plan, will receive consideration on appeals that show hardship.

**YES YOU DID, NO I DIDN'T**—Howard S. Cullman, chairman of the Port of New York Authority, last week accused Mayor Vincent Impellitteri of blocking start of construction on the $85-million third tube of the Lincoln Tunnel. Bids for $10 million of cast metal segments for the first phase were canceled. Mr. Cullman said the mayor refused to let the agency start tearing up streets before controversy over street connections, still before the Board of Estimate, is settled. (ENR Sept. 20, p. 24). Replied the mayor: Unfair . . . . it was a Board of Estimate decision that nothing should be done until plans for approaches to the tunnel are settled. When settlement might come remained anybody's guess.

**PIPE SUPPLY EASING**—Cutbacks in the building construction program are beginning to affect the supply of steel pipe. Critically scarce until the last month or two, large pipe jobbers now see demand easing, especially in small sizes. Return of a buyers market may come as early as the second quarter next year.

**COMMERCIAL BUILDING CUT**—Commercial construction will continue to run in low gear through the first quarter of 1952. Of project applications acted upon up to last week, 80% were denied by the Construction Controls Division of the National Production Authority. Up to that time, the agency had taken action on 2,052 applications for allotments of controlled materials to build commercial, religious, community and entertainment structures. NPA turned down 1,610 applicants, granted allotments to 350, authorized construction for 41 that require no controlled materials, and notified 51 that their small requirements need no NPA authorization.

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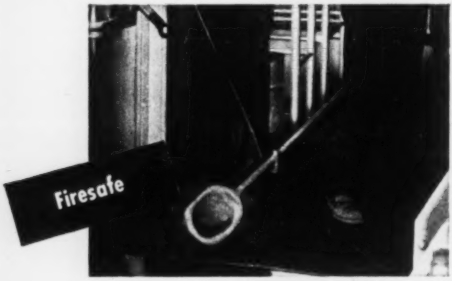
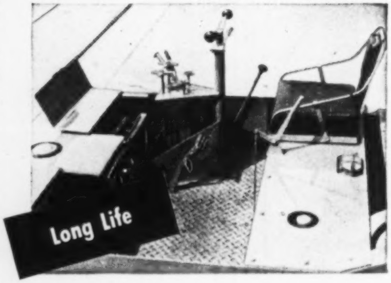
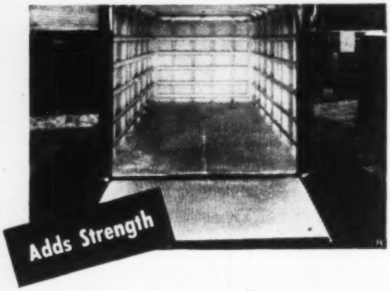
**For greater safety under foot, in your plant and on your products**

# Inland 4-Way® Safety Plate





Quick Starts—Stops



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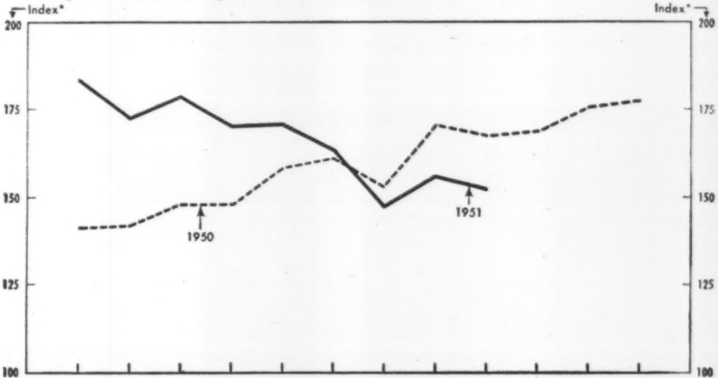
## BIG STOCKS MAY MEAN DROP IN MATERIALS PRICES

**Output of building materials has been dropping sharply. Falling production reflects the recent dip in construction activity. And it indicates that builders will be paying less for some materials over the next few months.**

Construction volume has been below 1950 levels ever since June. That's in actual physical units, rather than inflated dollars. As a result, manufacturers of building materials—who were producing at a record rate in January—did not increase production as much as usual during the summer months. That shows up as a drop in the seasonally adjusted index on the chart. The index goes down whenever production rises by less than the normal seasonal amount.

**Output of building materials drops**



*Dept. of Commerce, 1939 monthly average equals 100. Adjusted for seasonal variation.

But the key fact for contractors is hidden behind the production figures. That's the big size of inventories of non-metallic building materials.

**Stocks were built up this summer, when sales and new orders fell below last year's levels. Manufacturers cut back production in lines where sales fell most—mainly materials that go into residential buildings. But they didn't cut output fast enough to avoid accumulating excess materials.**

- **Prices**—Big stocks mean weakness in prices over the next five months—for these reasons:

Prices always tend downward when stocks are high in relation to sales. That's been the case with many building materials for some months.

Manufacturers can't count on getting rid of inventories through an early upswing in construction activity—since activity will be going down in the next few months. And the biggest decline will be in housing—which uses the materials that are overstocked today.

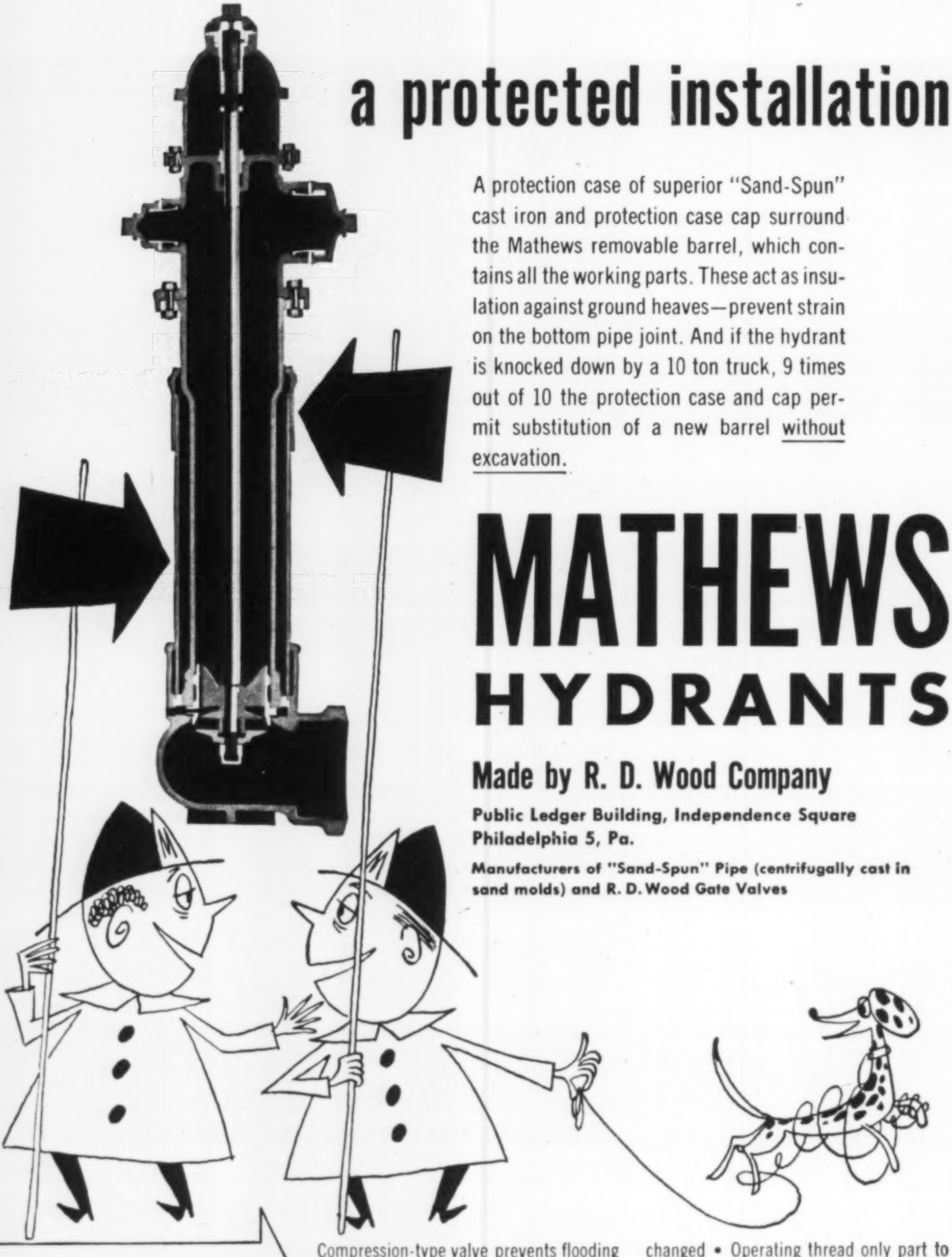
A lot of manufacturers will be needing a lot of cash next March to meet their Federal taxes. They won't want to have all their cash tied up in inventories. So they may be cutting prices in order to increase sales.

All this applies to non-metallic materials used mainly in homebuilding. That's where the big inventories are, and that's where demand from builders has dropped the most. With volume of industrial building and heavy construction running high, prices of other materials will be firm or—as in the case of steel—higher.

**This down-trend in prices will slow down once inventories have reached reasonable levels. What happens after that will depend mainly on the outlook for residential construction. If home-builders can find enough copper or copper-substitutes to increase housing starts toward the second half of 1952, declines in prices could quickly be turned into sizeable increases.**

# a protected installation

A protection case of superior "Sand-Spun" cast iron and protection case cap surround the Mathews removable barrel, which contains all the working parts. These act as insulation against ground heaves—prevent strain on the bottom pipe joint. And if the hydrant is knocked down by a 10 ton truck, 9 times out of 10 the protection case and cap permit substitution of a new barrel without excavation.



# MATHEWS
## HYDRANTS

### Made by R. D. Wood Company

**Public Ledger Building, Independence Square**
**Philadelphia 5, Pa.**

**Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves**

Mathews Modernized Hydrants offer these advantages

Compression-type valve prevents flooding Head turns 360° • Replaceable head Nozzle levels easily raised or lowered without excavating • Nozzle sections easily changed • Operating thread only part to be lubricated • A modern barrel makes an old Mathews good as new • Available with mechanical joint pipe connections

# EDITORIALS

## Road leadership—on time

The United States can recover from its roadbuilding dilemma, beginning two years from now, if lawmakers heed the highway men.

Executives of the American Association of State Highway Officials want Congress to increase federal aid by two-thirds beginning July 1, 1953 (ENR Dec. 13, p. 27). That's when we're supposed to be able to get the steel that's needed for roads.

But now is the time to lay the groundwork. It is the 1954 and 1955 appropriation that Congress will start considering next month.

Now, with states unable to contract part of their work because of the steel pinch, both federal aid money and legislatures' appropriations are going begging. Right there is one answer to the question, "Where is the extra 1954 and 1955 money to come from?" A large chunk of it can come from unexpended funds.

More money must also come from bond issues and gasoline-tax increases, which state legislatures should consider seriously at this time. Prospect of increased federal aid should be a stimulant to state action in both these directions.

Every motorist—which means nearly every citizen—knows that highways are not being built fast enough today. And road deficiency has grown with equal rapidity. In the future we must build roads to catch up with needs. The current $500 million a year, if spent, might be enough to keep even. But $810 million (the new proposal) spent in 1953, 1954 and 1955 would begin to make a dent in the "catch-up" needs.

That's the dollars and cents of the highway officials' philosophy. It's good and it's timely.

## Atomic Age develops fast

Growth of the atomic-energy "industry" has been phenomenal. With it have come problems for the construction industry as well as benefits.

Some of the problems arise from the rate at which the atomic-energy program is drawing on construction labor and materials. Some are technical, because new concepts are involved in the building of facilities for housing the new industry, as pointed out elsewhere in this issue.

Benefits are just beginning to be felt—and for good reason. The Atomic Age is young. It was just nine years ago this month that the first nuclear chain-reacting pile was operated at the University of Chicago, proving that it was possible for man to release and control the energy stored in the nuclei of atoms. Since then the United States has invested $2.5 billion in creation of productive capacity for fissionable materials. When the present expansion program is completed, this investment will be twice as great. And even greater expansion is being considered (ENR Dec. 13, p. 25).

The direct effect of this tremendous expenditure on the construction industry is obvious. Hundreds of contractors and thousands of construction laborers are employed in building plants for producing fissionable materials. The indirect effects—by-product industries—may not be so obvious.

At the Reactor Testing Station in Idaho, tests are now under way on a breeder reactor. If this machine works—if it produces more fissionable material than it consumes in creating usable power—the go-ahead signal will be given for construction of full-scale, power-producing reactors. These plus the facilities presently needed to house activities relating to the use of radioactive materials in medicine, science, agriculture and industry spell out some of the benefits to construction. More will continuously appear for the Atomic Age is developing fast.

## More water through less waste

Only major point of agreement in New York City's fight over future water sources (ENR Dec. 13, 1951 p 29) is the vital need for conservation: underground waste correction and universal metering. But even though this point is agreed upon, it may not get the prompt action it warrants because points of disagreement may monopolize attention.

Engineers of the panel, recommending study of the Hudson River as a future source, emphasize conservation in their report. They call for establishment of a competent group to study and report on more extensive metering, another organization for detection and prevention of leakage and waste. Engineers of the city's Board of Water Supply don't dispute this recommendation; they have made similar proposals. The big question (posed before in these pages) is why action is not taken along these demonstrably fruitful lines?

What conservation can accomplish is an old story. Since 1936 Chicago has cut its pumpage 11 percent by a vigorous program of waste detection and an increase in metered sales. Even metering alone can have its effect: Cleveland cut daily per capita use from 172 to 98 gal while Boston's cut was from 128 to 90 gal. But New York can provide its own evidence. During the conservation campaign of 1949-50 some 275 mgd were cut from daily consumption mostly by voluntary effort —without any concerted attack on underground leakage.

The panel claims over 100 mgd could be saved by stopping leakage in 5,300 miles of water pipe buried under the city. Metering the 73 percent of the city's users not now metered would bring the total possible cut in consumption to near 300 mgd, they say. In 1947 cost of metering the entire city was put at $39,000,000. That is just the price now put on a proposed Hudson River source of 325 mgd.

Why then procrastinate any longer?

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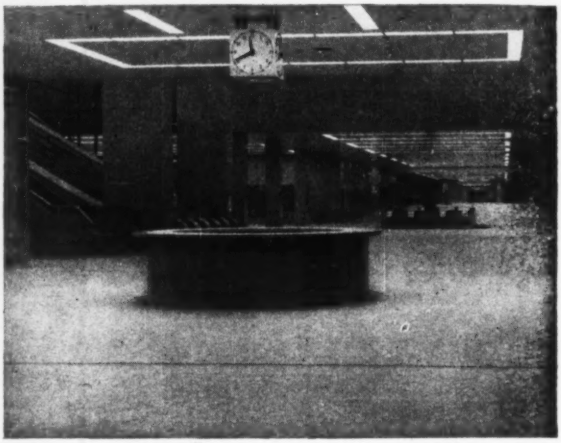

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For further information see SWEET'S Architectural Catalog, Section 4g/Uni and 13f/Un, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

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# Pirating of bricklayers charged at WSB hearing

DETROIT—The nation's first contested construction industry hearing before an enforcement commission of the Wage Stabilization Board got underway at Federal Bldg., Detroit, Mich., last week.

The hearing grew out of a complaint issued on Nov. 23 by the Michigan Wage Stabilization Board's Regional Counsel against the J. D. Hedin Construction Co., Inc., Washington, D. C.

The complaint alleges that the firm paid illegal wage rates to bricklayers during the building of the $7,152,000 Veterans Memorial Hospital at Ann Arbor, Mich. (ENR Dec. 13, p. 83)

Opening sessions of the hearing drew the lines clearly:

- On one side was the federal government and most of the organized contractors charging that the high rates paid were "unsettling" to local conditions and charging pirating of labor as an effect.

- On the other were attorneys for Hedin, who made it clear that their defense would be based on the impossibility of a comparatively small operator keeping fully advised as to the import of masses of government directives, laws, and controlling agencies.

First witness for the government was William Brown, assistant secretary of the Washtenaw County General Contractors Association. The association represents about 35 firms in the Ann Arbor area. Brown testified that in negotiating with unions representing skilled workers, a contract put in effect on May 1, 1950, and running to May 1, 1952, set bricklayers' wages at $2.75 an hour.

The complaint charged that Hedin, between Feb. 28 and Nov. 14, 1951, paid some 60 bricklayers on the hospital project at the rate of $3.00 an hour. The government's second witness, Council W. Caldwell, a Department of Labor investigator, stated that he examined Hedin's payroll records on Sept. 1, 1951, and that the bricklayer rate on or about Feb. 28, 1951, was increased from $2.75 per hour to $3.00. Newspaper advertisements were introduced to show that Hedin had advertised for bricklayers at the increased rate.

• **Complaints**—Henry Dekoning, president of Dekoning Construction Co., Ann Arbor, stated that the $3 rate introduced by Hedin caused him trouble in recruiting bricklayers for projects on which he was committed, and added that the higher rate "caused unrest among the bricklayers, who were dissatisfied when they say the $3 advertisements . . . and couldn't understand why we wouldn't go along with the higher rate."

**Dekoning identified two men, named on Hedin's payrolls, who had worked for him at one time, and the government's counsel attempted to show that they were "pirated" from Dekoning's projects by the higher rate offered by Hedin.**

Counsel for the respondent attempted to show that the bricklayers who left Dekoning were apt to leave for reasons other than that they could obtain higher rates on the Hedin project—unsatisfactory working conditions, dislike of the superintendent, and so on.

**Another government witness, Edward V. Kurtz, of Kurtz Building Co., Ann Arbor, testified that bricklayers left his projects where the rate was $2.75, in order to take $3-per-hour jobs at the time Hedin project was underway.**

• **AGC attorney testifies**—The government further established that Hedin offered the allegedly illegal $3 rate by calling John E. Kinsella, labor counsel and attorney for the Associated General Contractors, Detroit, to the stand.

Kinsella testified that Hedin, as well as smaller contractors in the Detroit metropolitan area (where the established rate was $2.85 per hour) had advertised for bricklayers, and offered $3.00 per hour.

**He added that such practices were "unstabilizing," and that the members of the association he represents had called upon him to take some action to prevent the payment of higher than rates which had been established.**

Kinsella said that upon two occasions he had contacted supervisors on the job at the Hedin project, and asked that they refrain from paying the higher rate, but, he said, he was told that instructions from the Washington offices of J. D. Hedin called for such payment.

• **Gave alarm**—The government's sixth and final witness was Stephen D. Butts, who served for 15 months during World War II as an industry member of the Wage Adjustment Board.

He testified that he had written to Eric Johnston, then economic stabilization administrator, bringing to Johnston's attention the fact that various contractors in the Detroit metropolitan and surrounding area were violating WSB regulations by paying illegal rates.

**Butts, now project supervisor for O. W. Burke Co., Detroit, testified that although his company "Always experienced difficulty in getting bricklayers since the war," the shortage became more acute this year when illegal rates were introduced in the area.**

Butts said that his company's part in a current project, construction of a state mental hospital, should have been completed last May but is still unfinished, largely because of a labor shortage, notably bricklayers. He said that the payment of over-the-limit wages "definitely" led to the pirating of labor.

• **Ask dismissal**—At the opening of the hearing, the attorneys for J. D. Hedin Construction Co., Steward R. Carter, Jr., and Edward P. Felker of Felker and Carter, Washington, D. C., protested and made a motion to dismiss the hearing on the grounds that insufficient time to prepare for the hearing had been granted the respondent, and also that "the company is and has been expected to keep itself informed of a growing mass of regulations, laws, orders, and a multiplicity of agencies and sub-divisions thereof—a mass of information impossible for any such company to follow, digest and interpret." The motion was overruled.

**The case is being heard by the Michigan Regional Enforcement Commission composed of Leonard A. Keller, (chairman) associate professor of industrial relations at the Univer-**

**sity of Michigan, The Rev. G. Paul Musselman, arbitrator and rector of Mariners Church in Detroit, and Jean T. Sheator, member of the advisory board of the Reconstruction Finance Corp. and member of the review board of the Detroit Ordnance District.**

Attorneys for WSB are Hyman Parker, regional counsel, Russel M. Helterline, chief enforcement attorney, and Benjamin A. Theeman, assistant chief, Enforcement and Litigation Div., Washington WSB.

Penalties which the commission may impose are a denial of the total illegal wage payments (amounting to about $150,000) for income tax purposes, and at their discretion, disallowance of the illegal wage payments as an item in determining costs or expenses under any government contract or in setting or approving any maximum price ceiling.

**• Closed Monday**—Hearings ended Dec. 17, closing out three days of testimony.

A three-member regional enforcement commission of the Wage Stabilization Board will render a decision on or about Jan. 6.

After government witnesses testified that Hedin's payment of higher wages caused "unrest" and amounted to labor piracy, counsel for the respondent attempted to prove that Hedin had no choice but to make such payments, in order to complete the hospital project.

Defense counsel observed that payment of the $3 rate was only in keeping with the "practical prevailing wage" in the area. Government attorneys had produced newspaper advertisements signed by J. D. Hedin Construction Co., offering bricklayers $3 per hour. Defense attorneys countered by introducing scores of other advertisements which had run in Detroit area newspapers, also offering $3. Most of the ads were unsigned, and gave only telephone numbers.

Mr. Hedin, when called to the stand, said that the hospital project was one of the "toughest" of his experience. He said that if his company was guilty of paying illegal rates, labor also was guilty of violating WSB regulations by accepting the rates.

Early in the Hearings, Steward R. Carter and Edward P. Felker, attorneys for the respondent, challenged the constitutionality of the entire provision of the Defense Production Act which established wage stabilization machinery. Decision on the defense's motion to dismiss the hearings on those grounds was deferred.

Both parties will file briefs by Jan. 3 and the commission's decision will be made about three days later.

# Defense industry gets lion's share of new structural steel allocations

WASHINGTON—Five industrial expansion programs received more than 85% of the structural steel allotted for plant construction in the first quarter of 1952.

Allotments announced last week by the National Production Authority show that 314,000 tons out of 360,000 allocated for industrial expansion will go to programs that serve steel, aluminum, aircraft, machine tool and chemical expansion.

No program gets 100% of its requirements. Aluminum, magnesium and light metals come closest, with 98.6% for plant construction—in the program classification that includes all three. Planned expansion of the Air Force from 95 to 143 wings puts emphasis on rapid build-up of aluminum production facilities.

Paralleling this allotment, NPA's Facilities and Construction Bureau granted 94.5% of the structural steel requirements for building plants to produce aircraft and aircraft accessories, including guns. The accompanying table lists the requirements and allotments which have been made for each program.

**• Big chunk**—New steel mills and related projects in the iron and steel program get the largest allotment of structurals—nearly 140,000 tons—for industrial expansion in the first quarter.

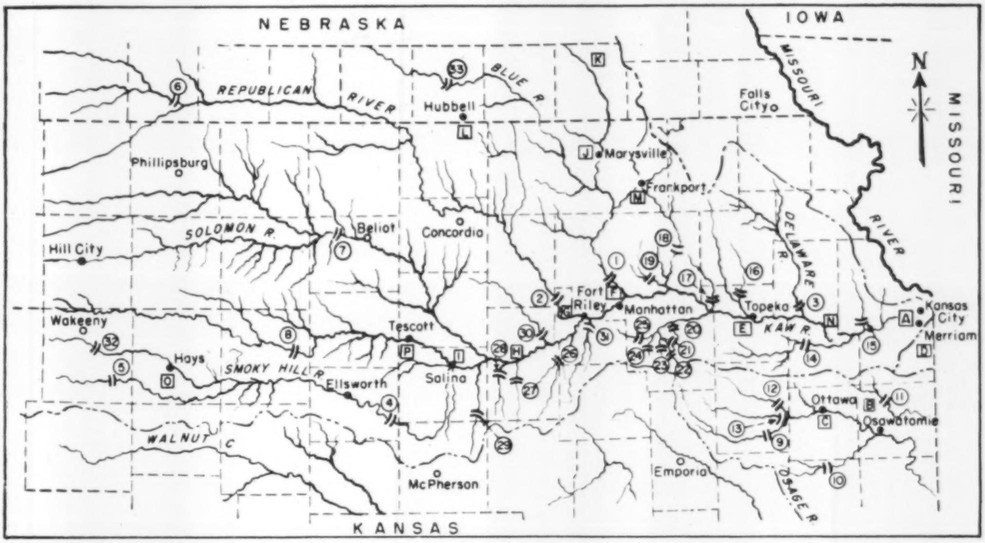
This tonnage will take care of 72% of bare minimum requirements, already reduced by an additional 35,000 tons through the help of the producers themselves. Because NPA grouped the programs in a new form this time, there is no way of comparing allotments with previous ones, but the 72% for iron and steel plants looks better than the 50% for steel expansion in the current quarter.

Chemical plants likewise get better treatment for the first quarter of 1952. Many of them had to be deferred during the present quarter. Announced allotments for the three-month period now coming to a close listed them with an industrial group that received only 26% of required structural steel. For the next quarter, chemical plant construction is allotted 46% of the scheduled requirements for structural shapes.

New plants to produce machine tools and general industrial equipment also are allotted a substantial tonnage for the first quarter, amounting to about 63% of the structural steel required. The added plants will help to break the bottleneck in manufacture of new machine tools needed to produce the latest types of munitions and other hard tools for the military.

Structural Steel for Industrial Expansion And General Commercial Construction

| (First Quarter 1952) Construction Program | Stated Requirements | Allotment | % of Request Alloted |
|---|---|---|---|
| | (Tons) | | |
| Aircraft, aircraft accessories and ordnance | 88,701 | 83,756 | 94.5 |
| Aluminum, magnesium and light metals | 26,000 | 25,656 | 98.6 |
| Building materials | 11,539 | 4,205 | 36.4 |
| Chemicals | 70,291 | 32,733 | 46.5 |
| Consumer durable goods & service equipment | 10,540 | 1,395 | 13.2 |
| Containers and packaging | 11,427 | 411 | 3.5 |
| Copper, copper alloys, brass | 2,029 | 1,761 | 86.8 |
| Electrical equipment | 3,213 | 1,116 | 34.7 |
| Electronics and communication equipment | 4,722 | 4,620 | 97.8 |
| Machine tools and general industrial equipment | 52,514 | 32,874 | 62.6 |
| Iron and steel mill products, ferro-alloys, foundries, refractories | 191,545 | 138,632 | 72.4 |
| Leather and leather products | 204 | 0 | 0 |
| Lumber and lumber products | 1,156 | 0 | 0 |
| Miscellaneous metals and minerals | 7,000 | 6,191 | 88.4 |
| Pulp, paper and paper board | 31,280 | 10,046 | 32.1 |
| Railroad equipment | 569 | 0 | 0 |
| Rubber | 8,163 | 5,770 | 70.7 |
| Scientific and technical equipment | 7,220 | 2,099 | 29.0 |
| Textiles and synthetics | 19,227 | 8,781 | 45.6 |
| Tin, lead and zinc | 419 | 70 | 16.7 |
| Printing and publishing | 777 | 169 | 21.7 |
| General Commercial Construction | 61,995 | 10,030 | 16.1 |
| Total | 610,440 | 370,315 | |



RESERVOIRS PREVIOUSLY RECOMMENDED: 1. Tuttle Creek.* 2. Milford. 3. Perry. 4. Kanopolis.** 5. Cedar Bluff.** 6. Harlan County (Neb.).** 7. Glen Elder.* 8. Wilson.* 9. Melvern. 10. Garnett. 11. Hillsdale. 12. Pomona.

NEW RESERVOIR PLAN: 13. Salt Creek. 14. Clinton. 15. Linwood. 16. Grove. 17. Rossville. 18. Onaga. 19. Camp Creek. 20. Kinsley No. 1. 21. Nehring. 22. Halifax. 23. South Branch. 24. Illinois. 25. Spring Creek. 26. Woodbine. 27. Turkey Creek. 28. Holland Creek. 29. Gypsum. 30. Sutphen Mill. 31. Humbolt. 32. Wakeeney. 33. Hebron (Neb.).

LEVEE PROJECTS PREVIOUSLY RECOMMENDED: A. Kansas City.** B. Osawatomie. C. Ottawa. D. Merriam. E. Topeka. F. Manhattan. G. Ft. Riley. H. Abilene. I. Salina. J. Marysville. K. Beatrice (Neb.). L. Hubbell (Neb.).

NEW LEVEE PROJECTS PLAN: M. Frankfort. N. Lawrence. O. Hays. P. Tescott.

*Authorized project. **Completed or under construction.

# New flood control plan for Kaw Basin mapped to harness flow of tributaries

KANSAS CITY—The Corps of Engineers of the U. S. Army last week took the wraps off a new plan to protect the Kaw (Kansas River) Valley against a recurrence of the flood disaster last summer.

The program calls for 22 new reservoirs and five additional levee projects. It expands the present flood control plan of 12 reservoirs and ten levee projects, some of which are completed or under construction (See ENR Nov. 15, p. 28).

Cost of the new projects will total between $250 million and $275 million, above the $390 million already spent, authorized, or recommended under current plans.

• **Flood study**—The new plan was drafted after an analysis of the 1951 flood under direction of Lieut. Gen. Lewis A. Pick, chief of engineers. It was announced to a meeting of the Missouri Basin Inter-Agency Committee in Topeka, Kansas.

To obtain congressional approval of the plan, residents of the Kaw Basin area will have to initiate requests for new legislation authorizing the projects. Consideration of the plan is expected at the next session of Congress which will convene in January.

Engineers recommendations include a number of smaller reservoirs designed to harness the numerous tributary streams whose uncontrolled flow during last July's storm swelled the Kaw crest to record proportions.

Capacity of the 22 new reservoirs would range from 50,000 ac-ft to 300,000 ac-ft of storage. This compares with the 2 million ac-ft of storage to be provided by the previously proposed Tuttle Creek Dam, and the 450,000 ac-ft stored behind the completed Kanopolis dam.

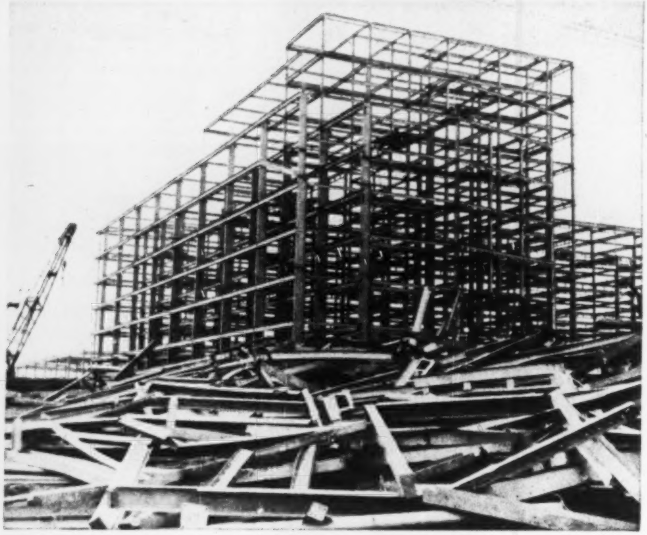
The 12 large reservoirs in the present Kaw plan would store 7 million ac-ft, of which 5 million ac-ft would be flood storage. The 22 new dams would add 2.5 million ac-ft on small but dangerous tributaries.

• **Plan is basic**—According to Col. L. J. Lincoln, district engineer at Kansas City, 125 damsites and 42 levee projects have been analyzed by engineers since the flood.

Those selected are basic units designed to contain the maximum water flow based on the 1951 study. To determine that hypothetical disaster, the 1951 storm center was moved somewhat north, since a considerable part of the run-off escaped southward through the Cottonwood-Neosho river into the Arkansas river basin. The Kaw's peak discharge in the July flood was 508,000 cfs at Kansas City. The new plan is aimed at a possible discharge of 676,000 cfs.

If additional protection is needed, it is suggested that the proposed Tuttle Creek Dam on the Blue River, Milford on the Republican River, and Perry on the Delaware River be operated as "dry" dams, eliminating the conservation pools proposed earlier to assure downstream water supplies in low-flood periods.

Further hydrological study will be required above the proposed new sites to get more precise size and cost estimates on each. The review of stage heights and discharges of the streams contributing to last summer's flood definitely shows where the dams are needed, engineers said.



**TOPPLES IN WIND**—The steel framework for a section of one wing at the Lankenau Hospital, Philadelphia, was bolted in position and ready to be riveted when it collapsed from vibration during high winds. (Philadelphia Bulletin photo.)

## Steel framework collapses in high wind

PHILADELPHIA—Seventy-five tons of steel columns and girders, the five-story framework for a wing extension at Lankenau Hospital here, collapsed to the ground in a high wind last week.

The collapse occurred at 4:40 pm Sunday. No one was injured.

The framework was a section at the end of a wing, which, with a parallel wing and a connecting building, make the hospital an "H" shaped structure. It covered an area 60 ft long by 40 ft wide.

The framework had been bolted into position and was ready to be riveted. Riveting crews reported for work Saturday morning, but were unable to work because of rain.

**• Wind vibration**—The average wind velocity in the Philadelphia area on Sunday afternoon was 32 mph. The framework was situated atop a hillside near the northwest city line. At the time it collapsed, the weather bureau reported gusts of wind up to 40 mph, of light gale intensity.

Ralph Cornell, Philadelphia, who is the contractor for erection, said "the wind set up vibration in the girders, and the bolts weren't strong enough to hold them together."

Apparently the wind loosened one or more of the girders, which slipped out of place. Their weight carried down other parts of the framework with a rumbling crash, which residents of the area described as lasting for about a minute.

Wreckage was piled 6 ft to 7 ft high in some places. Few of the members were distorted or otherwise damaged. No riveted members were affected by the collapse.

Ground was broken for the $8-million six-story hospital last May 19. The $389,095 contractor for erection called for completion of steel work by Sept. 20, but delays in foundation work and difficulties in obtaining the steel held up the job, according to Albert Schede, executive vice-president of Belmont Iron Works, steel supplier.

## Special Ohio session revises turnpike act

COLUMBUS—A special session of the Ohio legislature last week quickly removed the roadblock holding up financial arrangements for its proposed $310-million toll highway.

In four days both the House and Senate approved, and Gov. Frank J. Lausche signed, amendments to the Ohio Turnpike Act which will permit the turnpike commission to take possession of land under condemnation proceedings without waiting for the results of appeals.

This action cleared the way for the Ohio Turnpike Commission to resume negotiations with New York investment bankers for money to build the 240-mile highway across the northern part of the state.

Two political maneuvers to otherwise alter the act were stifled. One was an attempt to reopen the commission's decision to build the highway with concrete, and admit bids on asphaltic concrete. The other was called the "Maumee amendment," which proposed that municipalities could rule on routing and other details of the Turnpike within their corporate limits.

Robert C. Ragen, Toledo attorney representing the Maumee-Illyria group, said he would file a suit in the Ohio Supreme Court, charging that the broad condemnation powers granted the Turnpike Commission violate "due process" provisions of both the federal and state constitutions.

Elsewhere across the country finance was receiving attention:

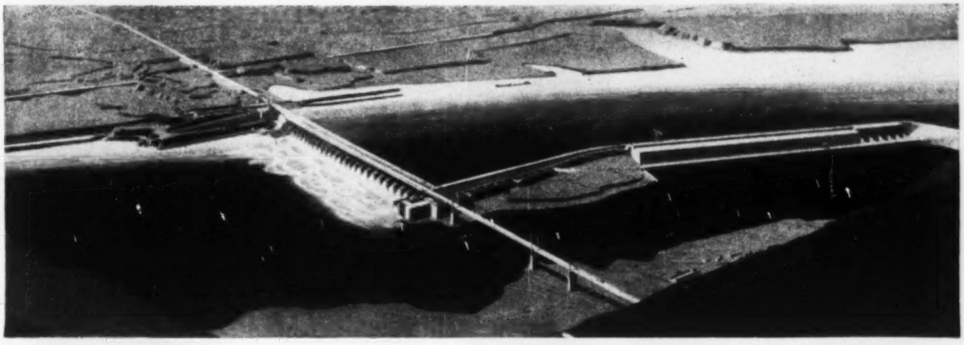
**• Madison, Wis.**—A state highway construction and improvement program to cost $55 million, was reported last week by the Wisconsin Highway Commission. Federal funds for the projects are expected to total $17 million, with the state, counties, and municipalities contributing the rest.

**• Trenton, N. J.**—An additional 16 miles of the New Jersey Turnpike between Woodbridge and Newark were opened to traffic last week. This makes 109 miles of the expressway from Delaware River Memorial Bridge to Newark available to traffic.

**• Baltimore, Md.**—Maryland plans to spend $33.5 million in each of the next two years on highway construction, it was disclosed last week by Gov. Theodore R. McKeldin, Jr. He promised increased construction of dual highways. He proposes to buy the right-of-way for dual highways, but building only one lane at a time.

**• Montgomery, Ala.**—Voters last week approved an amendment to the State Constitution permitting issuance of $25 million in general obligation bonds to finance one of the largest highway building programs in the state's history.

**• Jackson, Miss.**—Mississippi will spend approximately $21 million on its highways in 1952, according to an estimate announced last week by Chief Engineer R. A. Harris of the State Highway Department. Of the total, $14 million is slated for the primary system and $7 million to the state-aid system.



ARTIST'S CONCEPTION of completed The Dalles Dam as it would look from the Oregon shore of the Columbia River.

# Straight spillway design approved for The Dalles Dam

Portland, Ore.—A change of design for The Dalles Dam on the Columbia River was announced recently, and a call for first bids followed almost immediately. The change involves a switch from a complicated curved spillway to a straight one. But the new plans do not materially affect the estimated $10 million of cofferdam construction to be included in the first contract.

Bids will be opened Jan. 22, according to Portland District Engineer Thomas H. Lipscomb. The contract, let as a whole to one bidder, will be on a continuing basis, he said, since the last congressional appropriation provided only $4 million to start off the project.

But the $350-million project is one of the largest single jobs from the dollar standpoint ever undertaken by the federal government. The cost includes 14 units rated at 78,000 kw each. Ultimate installation when upstream storage is developed will be 22 units.

Approval of the straight spillway design was made by Lt. Gen. Lewis A. Pick, chief of the Army Engineers, at the end of a two-day meeting of eight representatives from General Pick's office and engineers from the North Pacific Div. and the Portland district.

**• Spillways studied**—Model studies at the Corps of Engineers' Bonneville hydraulic laboratory indicated the greater desirability of the straight spillway over the curved.

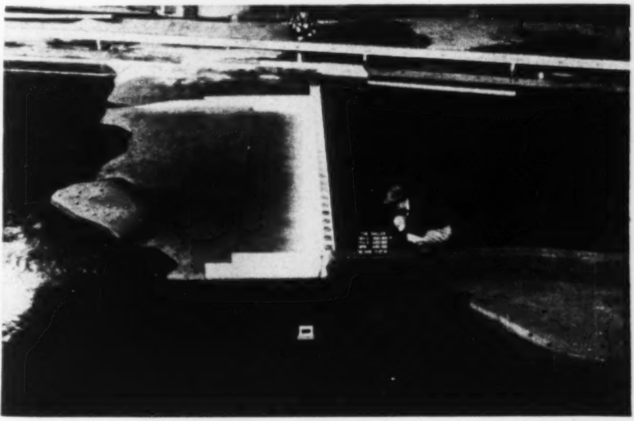
The change also provides for rerouting an interstate bridge over the Columbia now under construction. Because of the new dam's design, construction of the bridge as originally planned can not continue, according to Colonel Lipscomb. Cost of the bridge structure, originally estimated a $3 million will be moderately increased by the route change. It is probable that the north bridge approach will be built on top of the dam spillway.

The bridge is a project of Wasco County, Oregon. Plans were prepared by Tudor Engineering Co., San Francisco, with assistance from both the Washington Toll Bridge Authority and the Oregon Highway Commission. Piers are completed and steel for the 576-ft main cantilever span is being fabricated. Contractor, under a $1.9-million bid, the Guy F. Atkinson Co.

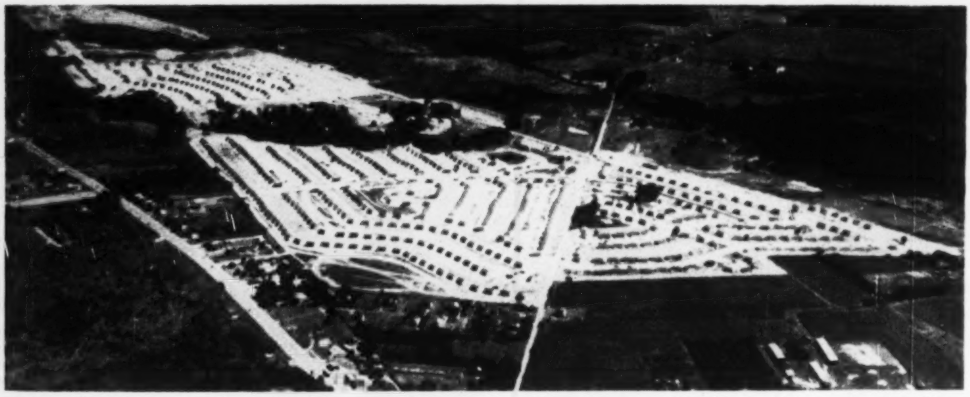
**• One of series**—The Dalles Dam will be fifth in a series of Columbia River dams in the federal program. It will be located at the head of the Bonneville pool, 192.5 miles above the mouth of the Columbia and about three miles east of The Dalles, Ore. It will consist of a navigation lock, spillway, power house and non-overflow dam sections, totaling more than a mile in length.

Fish ladders and power house collecting systems similar to those at Bonneville Dam and those designed for McNary Dam are proposed.

Completion of The Dalles project will bring total generation from five federal projects on the Columbia River (not including projects on tributary streams) up to about 5.7 million kw.



MODEL of The Dalles Dam at Bonneville, Ore., hydraulic laboratory shows spillway structure with piers for the south approach of The Dalles Bridge in the foreground. Present plans call for the bridge to cross the spillway structure. Work on the dam is expected to begin early in spring 1952.



**BIRTH OF A CITY**—At Fairless Hills, Pa., nearly 1,100 homes are already nearing completion near the new Fairless Works of U. S. Steel Co. Started last May 15 by Danherst Corp., the community now has some 600 residents and is growing daily. When it is finally finished, the community will be about four times this size.

# Trouble-shooter tackles housing snarl

WASHINGTON—The Defense Department has called in a crack trouble-shooter to get housing for military personnel moving at a speedier clip.

He is Thomas P. Coogan, large-scale contractor, head of Housing Securities, Inc., and past president of the National Association of Home Builders. His new job as director of the recently-created Armed Forces Housing Agency is to develop and coordinate the building of Wherry Act family housing by private builders for the Army, Navy and Air Force.

The goal is to get construction of 20,000 to 30,000 low cost homes for sale or rent started at defense installations before 1953. His powers include setting standards of cost, construction and design.

**In an emergency move last week, the Public Housing Administration made the first use of federal funds for temporary defense housing. It includes 16 projects in 14 critical defense housing areas. Dwelling units, totaling 2,815 will consist of trailers, portable family dwellings, and prefabricated houses.**

Of the $25 million that Congress appropriated to carry out the act, it is estimated that $11.5 million will be used for these units, the remainder to be programmed later.

- **Jerky start**—Appointment of Mr. Coogan comes at a time when the Defense Mobilization housing program headed up by Housing and Home Finance Administrator Raymond M. Foley is underway, but far from hitting on all cylinders.

New communities are starting to pop up in critical defense areas, and in some areas are moving ahead at a record breaking mass-production pace. In other areas housing is lagging, as contractors and bankers alike hesitate amid uncertainties and confusion.

Here are a few sidelights on the picture:

- **Tough job**—In Utah, where the Tooele region west of Salt Lake City has been designated a critical defense area, contractors have not as yet put down foundations for residences planned to meet the needs of people being recruited for the expanding Tooele Ordnance Depot, Dugway Proving Grounds, and the Deseret Chemical Depot.

Before contractors can begin, they have to solve the problem of where to house the men who are going to build the housing.

While some workers can drive to jobs from Salt Lake City and other population centers nearly 60 mi distant, contractors will have to house much of their work forces in trailer camps, construction barracks, or unused military facilities. In either case there is no easy solution.

A request for bids on a 25-unit Army housing project at the Tooele Ordnance Depot brought only one bid acceptable to the Federal Housing Authority—that of Triangle Lumber Co. of Idaho Falls at $247,920. Bid for a 150-unit army project at Deseret Chemical Depot brought only two acceptable figures, from Leland McArthur & Associates, Las Vegas, Nev., at $1,250,000 and Richard L. Fairless & Associates, Salt Lake City, at $1,332,500.

Applications from builders for construction of 73 homes in the Tooele, Grantsville and Magna areas (units of 250 to be programmed by FHA for the Tooele area) have come in so slowly—or not at all—under figures originally set, that new bids have been sought after an upward revision of minimums—$1,000 per unit.

- **Slow going**—Critical housing program is slow at Las Cruces, N. Mex., because present rents are $100 and more for two-bedroom houses which the government program specifies must rent a $70 or less. Because many of the residents are construction workers, contractors fear over-building, and the city is slow in assuring utilities.

At Alamagordo, one contractor built 20 houses, but couldn't sell to military personnel who are supposed to need them. After the required 60 days, he sold them to the general public.

- **No profit**—Allocated to San Diego, Calif., last July (under Regulation X providing relaxed credit) were 6,000 units, 4,000 for rental and 2,000 for sale. Sales ceilings ranged up to $8,500 for three-bedroom units and rental ceilings ranged from $55 to $75. At the same time 700 units were allocated to Oceanside, and 100 to Imperial County in the towns of El Centro and Imperial.

Under this program seven houses were completed in San Diego, six by individuals doing their own contracting and one by a contractor, Moran Construction Co. Charles Moran, manager, says he lost money on it because of the price ceiling. None were built in Oceanside. About 40 were completed in the two Imperial Valley towns where contractors said they broke about even because of cheaper land costs.

There has been no difficulty with materials shortages for home construction in any of these areas. In San

Diego, the rate of construction has fallen off because of a shortage of mortgage money and relatively high down-payment requirements under FHA Title II, and the practical end of the Veterans Administration low down-payment program.

Now the Housing and Home Finance Agency has come out with an expanded critical defense area program for San Diego under which 9,000 homes are allocated for financing with pre-war low down-payments under FHA. Of these 6,000 are for rental and 3,000 are for sale.

Ceilings were hiked on 800 of the three-bedroom for-sale houses to $9,500, and on 1,700 three-bedroom for-rent units to $85 a month. The remainder scale down to about the same, or below the old program.

• **Lone Star**—The government pinned the "critical" label for housing on Lone Star, Texas, on July 23. The FHA, acting for the HHFA, quickly stepped into the picture. Four days later it announced that 20 one-bedroom homes to rent for $50 a month; 60 two-bedroom homes to rent for $60; and 20 three-bedroom homes to rent for $70—would be built in the first phase of emergency housing.

Contracts on the 100 were let on a first-come first-served basis, according to Leslie Hill, member of the National Defense Committee of the National Association of Home Builders.

The first to come, however, were not familiar with drainage and sewage problems of the area, and later gave up their contracts. The snarl caused delays.

The Dallas office of the FHA is currently receiving bids until Jan. 3 for 50 more units at Lone Star. Builders will be chosen this time on the basis of site location, size of unit, and capacity to build.

• **Seattle dilemma**—Six months ago, the Seattle, Wash. firm of Modern Home Builders, one of the largest housing firms in the state, announced plans to build 125 houses in a suburban area adjacent to cross-sound Bremmerton, a critical defense area for the Puget Sound Navy Yard.

Before construction could begin, sewers and water mains had to be extended into the area. Before utilities could be extended, the area had to be annexed to the city and a local improvement district formed to aid in financing. All legalities have not been completed yet.

The firm faces a different problem in the Pasco-Sunnyside-Grandview area of Washington, adjacent to the Atomic Energy Commission's Hanford Works.

Under defense housing regulations, only workers who have entered the area since Dec. 19, 1950, and are employed by one of four firms are eligible to buy. Workers who came into the area before that date, many of whom have been living in sub-standard housing because better housing has not been available, are ineligible. These older workers are also better able financially to buy new homes.

• **Rebel stand**—Home builders in the Louisville, Ky., area are afraid someone might designate their city a critical defense area because of the construction nearby of a $100-million installation for General Electric Co.

Arthur Sorrel, secretary of the Associated Home Builders of Louisville, said experiences in other parts of the country show there is no incentive to home builders to construct houses either for sale or for rent, and absolutely no speculative incentive on the part of investors in rental property, under the present federal program. They are agin' it.

• **500 units programmed**—The DPA and the HHFA last week announced another 400 units of defense housing have been programmed for the Pensacola, Fla., defense area and 100 more units for Parris Island, S. C.

DEFENSE HOUSING UNITS—**Three basic houses for Levittown, Pa., a planned community of 16,000 homes near U. S. Steel's Fairless Works, went on display to the public Dec. 8. Left to right: The Bugeteer, a two-bedroom unit available for rental only; the Levittowner, a three-bedroom model for $9,990; and the Country Clubber, with three bedrooms and an expansion attic for $16,990. Levittown is scheduled to be completed in 1954.**

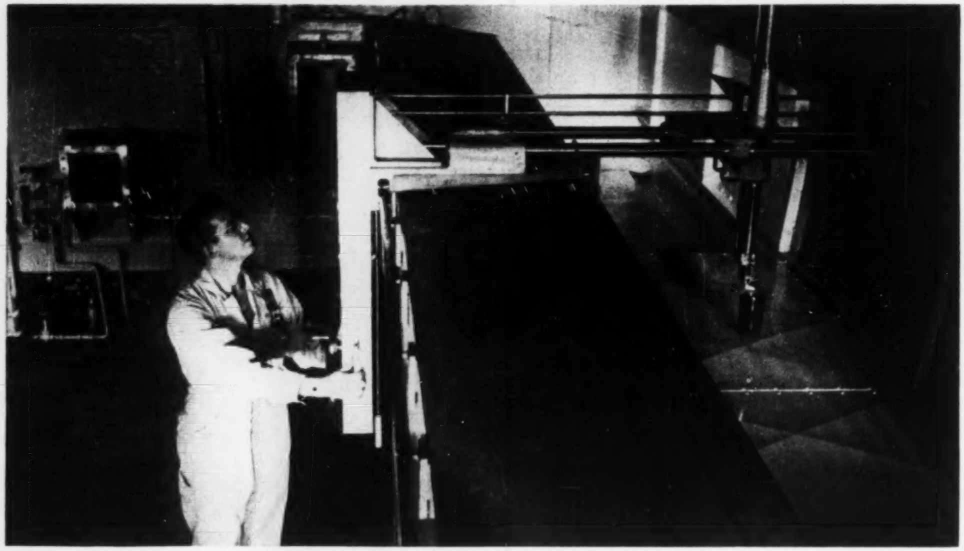
## NEWS BRIEFS

• **Money, money, money**—Public housing is definitely taking a financial spurt. Connecticut borrowed $45 million last week on rental housing notes due late in 1952. Interest costs range from 1.10% to 1.18%. The New York City Housing Authority also announced last week that it would receive bids this week on $32.8 million of notes due in Jan. and May of next year. The money will finance Bland Houses, Queens; Melrose Houses, Bronx, and Farragut Houses, Brooklyn. Bids for the largest public housing project in St. Louis, Mo., are expected to open this week. Estimated cost of the project is $17 million and will consist entirely of 11-story elevator buildings.

• **Bridge Design Contest**—"Welded Bridges for Steel Conservation" is the theme for the 1952 bridge design contest sponsored by trustees of the James F. Lincoln Arc Welding Foundation. The competition will close July 15, 1952. The design problem calls for weight comparison of a riveted steel highway bridge and an all-welded highway bridge for the same service. First-prize award of $7,000 and fourteen runner-up awards totaling $9,100 more will be judged on quality of design of both bridges; proportionate steel savings of the welded design and comparative total cost of the two bridges. The jury of award is under the chairmanship of James G. Clark, professor of civil engineering, University of Illinois. Complete rules are available on request from the Secretary of the foundation, P. O. Box 3035, Cleveland, Ohio.

• **Tunnel progress**—Work on the second phase of the Baytown-La Porte Tunnel is scheduled to begin Jan. 1. Farnsworth and Chambers Co. has been awarded the job that will include asphalt paving on the concrete roadbed, tile walls, all electric and plumbing, ventilation, a garage building and power plant. The power plant will be located at the tunnel's north portal on Blackwell peninsula near Baytown.

• **Aluminum pour**—First aluminum was poured last week at the newly constructed Chalmete, La., plant of Kaiser Aluminum and Chemical Corp. When completed it will be the largest plant of its kind in the U. S., with an annual output of 200,000 tons. Henry J. Kaiser, president of the corporation, and Defense Mobilizer Charles E. Wilson, officiated at the ceremonies.



REMOTE-CONTROL HANDLING of radiochemicals from behind thick concrete walls is necessary at Oak Ridge National Laboratory. In transporting a bottle of "hot" isotope, the researcher observes it through a system of mirrors. AEC photos

# How to build a "hot lab"

**With rapid increase in use of radioisotopes, you may have to provide facilities for handling them in your next industrial plant, hospital, college building or research laboratory**

New applications are springing up daily for radioisotopes, those amazing unstable chemical elements obtained as byproducts of atomic furnaces. Yet, with all the benefits they offer, they are dangerous; they can kill or seriously injure anyone exposed to them—even for a short time and even with a wall or floor between.

So precautions must be taken to protect the personnel who have to handle these "hot" elements. These safety measures call for new concepts in design and construction, such as extensive remote-control handling of chemicals, shielding against highly penetrating radiation, decontamination of accidentally radiated building materials and disposal of radioactive wastes.

Helpful information for building designers has been made available by the Atomic Energy Commission. Some of this has been published previously in ENR (Jan. 25, p 36; April 19, p 37; and June 21, p 39). Still more was presented at a two-day conference held in Washington in November by the AEC and the American Institute of Architects. (Proceedings of this meeting will be published by the Building Research Advisory Board, a component of the National Academy of Sciences.) Following are basic design recommendations of the experts and two typical applications—a large laboratory for the Atomic Energy Commission at Brookhaven, L.I., and a small one in the Cancer Research Institute of the New England Deaconess Hospital, Boston.

**• Location of buildings**—Principles governing site selection and development for conventional chemical laboratories also hold for low-level radioactive laboratories. But for high-level facilities, here's what you have to watch out for:

Hotter facilities and their vent stacks should be down-wind from less active ones, to minimize the possibility of contaminated vapors being blown from hot to "cool" work areas. Similarly, hot works should be downhill from cooler ones. That would make less likely the chances of surface drainage carrying contamination into "cold" areas. Furthermore, underground waters should not be permitted to carry radioactive waste to where it might enter any water supply.

Hot-processing areas should be grouped together. This will simplify waste handling and prevent accidental contamination of cold areas.

Buildings should be arranged on the site in accordance with the intensity of radioactivity. Personnel should first pass through cold areas before entering "warm" areas, and through warm areas before reaching the hot ones. They thus would be less likely to carry contamination into the cooler areas. And with hot areas separated by fairly large distances from less active regions, need for heavy shielding is reduced.

Consideration should be given to the possibility that modifications and expansion of facilities may be required in the future. New buildings and additions to existing structures should not have to be placed in unsafe locations on the site.

• **Interior layout**—Radiation must be held below tolerance levels for instruments as well as personnel. When it is absolutely necessary that a hot facility adjoin a cold one, a shield will have to be placed between them.

Flexibility in use of space is a second important consideration. Of necessity, this implies use of modular design; buildings should be composed of standard-size units, or modules, each of which is completely equipped for carrying out the functions assigned that space. (A. D. Mackintosh, architect, Oak Ridge National Laboratory, recommends a 24-ft square general module. This, he says, may be subdivided for convenience into basic 4-ft modules. And these may be combined to form workable units of 8, 12, 16, 24 and 36 ft.)

As in locating buildings on the site, work areas inside any one structure should be arranged so that personnel enter cold areas first and then proceed through progressively warmer ones.

To permit future modifications in use of space, movable partitions are desirable for separating the various areas.

One locker room should be provided for storage of street clothes and an adjacent, but separate room for work clothes. Washrooms should be provided between these two locker rooms. This arrangement permits personnel at the end of a day to remove work clothes and wash before donning street wear.

• **Services**—General principles governing distribution of services to work areas in conventional laboratories hold also for hot labs. However, it is important that pipes carrying radioactive materials or wastes be shielded.

If services are distributed through a basement or tunnel, through which hot-waste drains must also pass, the space should be subdivided to shield the drains. This would permit maintenance personnel to work on the service lines for longer periods of time than if exposed to radiation from the hot lines.

• **Protective shields**—To stop or slow down the destructive gamma radiation from hot materials, barrier walls made of materials of high specific gravity, such as lead, steel or concrete, must be interposed. Heavy concrete (200 lb per cu ft or more), made with barite or steel pellets as aggregate, is in wide use for this purpose.

Several factors must be considered in the design of a shield: intensity of the radioactive source, measured in curies; energy of the gamma rays; tolerance of the human body (about 0.05 roentgens per 8-hr day); density and atomic number of the shield material; distance of the source from the shield and distance of personnel from the shield.

For high-energy radiation, the required thickness of wall to reduce activity to tolerance levels decreases with increase in density of the shield material. Thus, a 1-ft thickness of lead, which weighs 708 lbs per cu ft, is as effective as 1.5 ft of steel, which weighs 490 lb per cu ft, and as good as 4.9 ft of concrete weighing 145 lb per cu ft. If the density of concrete is increased to 220 lb per cu ft, however, only 3.25 ft of it is needed to replace 1 ft of lead.

Shield thickness may be computed from an exponental absorption law as a first approximation, corrections for scattering and reflection of radiation being added later. Due to the large number of shield materials and possible hot sources, however, designers would find it wise to check with the AEC for the latest design data on the materials to be used.

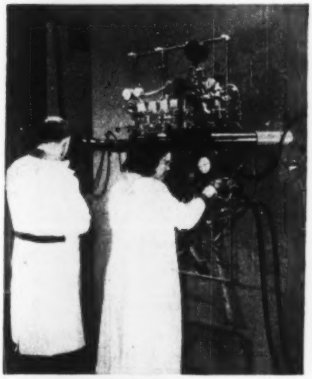
• **Interior surfaces**—In addition to conventional functional requirements, ease of decontamination must be considered in choosing interior finishes. Accidental spillage of a hot material in a Boston hospital has allegedly made the room radioactive for 1,500 years. Either cheap, easily removed materials may be used, or materials with an impervious surface that can be cleaned and re-used safely many times.

A list of manufacturers of surface coatings and construction materials for hot labs was published in NUCLEONICS, a McGraw-Hill publication, Nov., 1951 (Buyers' Guide). As a further guide, here are some recommendations of the U. S. Public Health Service:

For flooring, linoleum, asphalt tile, vinyl sheeting, ceramic tile and rubber sheeting have been found satisfactory in some installations. However, experience has not been satisfactory, in general, with continuous floors, including trowel-on mixtures of mineral aggregates with various binders. Tile flooring is at a disadvantage compared with semi-continuous floorings because of the spaces between tiles, in which hot materials may be trapped.

For walls and partitions, air-dried coatings on wood, concrete or steel, or baked-enamel coatings on metal are preferred. Plaster or tile are objectionable because cleaning or moving generates dust, which is particularly undesirable where radioactivity is present. Joints between metal partitions may be sealed with narrow strips of polyethylene and covered with peelable paint where necessary.

Where spillage and condensation may occur, strippable coatings are


**RESEARCHERS at Brookhaven work behind 1-ft thick steel doors.**

**HEAVY LEAD BOTTLE with hot chemicals is stored under thick concrete floor.**

**"WARM" ISOTOPE can be handled with tongs through an opening in a shield.**

highly desirable. Generally applied with spray guns, they have vinyl polymer bases. Though they are easily stripped from baked alkyl finishes, they may have to be applied over a parting compound on other types of finishes, such as vinyl paints.

Hoods may be made of stainless steel, pressed wood, asbestos cement, stainless-steel faced plywood, or steel with baked-enamel or air-dried finish. For working surfaces, however, stainless steel is preferred. If other materials are used, they may have to be given an undercoat of a non-porous material and covered with a strippable paint.

Stainless steel or polyethylene sheeting appear to be the best choice for sinks. The latter is preferred where a high-degree of contamination is possible.

• **Air systems**–Most experts consider air conditioning essential for hot labs. There are several advantages: "Sweat-free" working conditions, which reduce contamination hazards; better processing atmosphere; dust reduction; and longer working periods without danger from escaping gases or radiation.

The major portion of the air supply should be fed directly to the laboratories. The rest may be introduced first to office areas, allowed to pass through hallways and through door louvers into the hot labs. No recirculation of air can be permitted in the laboratories. Hoods and glove boxes are the greatest consumers of the air supply and therefore require careful design and control.

Two types of exhaust systems are desirable–one to handle exhaust from low-level (tracer up to 0.005 c) work, and the second for exhaust from higher level radioactivity. Hoods and conventional ducts could handle all low-level exhaust, while a system of caves, cells, glove boxes, dry boxes and radioactive process-gas lines could take care of hotter exhaust from the laboratory.

Supply-air systems may be constructed of conventional materials. For exhaust systems, stainless steel has been widely used, though some experts feel its use for this purpose is hard to justify. Asbestos cement, asbestos-protected metal, aluminum, galvanized iron and plastics have been used occasionally. Concrete, vitrified tile and acid-brick lined concrete are in service as underground ducts.

• **Hot-waste disposal**–Some of the radioisotopes have very long lives. After experiments are over, the problem arises as to what to do with them.

Two disposal methods are advocated: (1) dilution and dispersion, and (2) concentration and burial–both methods to be accomplished without noticeably raising the intensity of low-level activity ordinarily present in nature.

Hot material should be buried at least 5 ft below grade. However, it should first be diluted with non-radioactive isotopes of the same element in the same form. Total energy to be dissipated should not exceed 4.15 ergs per gram of element per day.

Iodine 131 may be discharged into a sewer if it is diluted prior to disposal with one gram of potassium iodide per millicurie of radioiodine. Furthermore, the hot isotope should be diluted to 10 microcuries per liter in the institution's sewage connection.

Phosphorous 32 may also be discharged into a sewer, but it must be diluted to 0.1 microcuries per liter. Also, 10 grams of stable phosphorous must be added per millicurie at the time of discharge. Maximum activity disposed of by any institution in any week should not exceed 200 millicuries.

Carbon 14 may be exhausted in the air. However, it should be diffused to prevent anyone from inhaling more than 0.01 microcuries per liter of air. The exhaust air should be filtered prior to discharge to the outside atmosphere.

Waste concentration before burial is accomplished by several methods:

(1) Carrier precipitation–Elements are removed from solution either alone or with closely related elements.

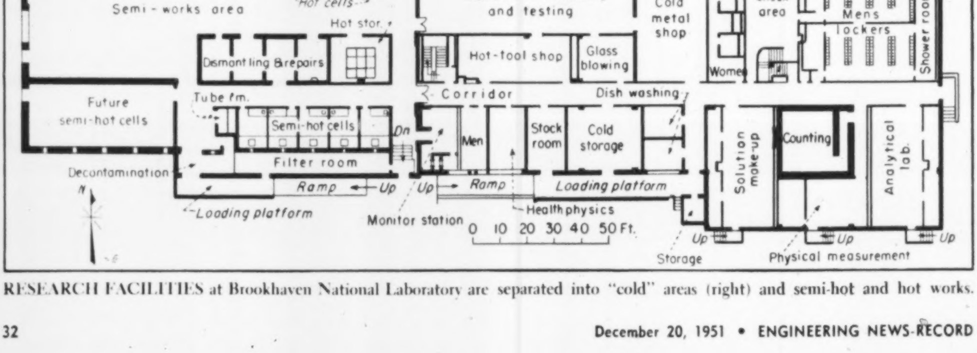
(2) Ion exchange–Synthetic resins in cation and anion exchange will completely remove some elements and mixtures from solution. If a single hot element is to be removed, ion exchange may be practical and relatively economical.

(3) Evaporation–Pilot-plant operation at Knolls Atomic Power Laboratory convinced General Electric Co. of the practicality of this method. A full-scale evaporator rated at 250,000 gal per month is now in operation. Volume reduction ratio is 300:1. About 120 cu ft of contaminated solid wastes are accumulated each month.

• **Large hot lab**–These design principles were successfully applied to Brookhaven National Laboratory on Long Island.

The long axis of the one-story 75x350-ft building extends in an east-west direction. Along this line, an 8-ft wide corridor runs down the center of the building between work rooms. At the east end, H. K. Ferguson Co., which designed and built the laboratory, placed the main entrance and double locker rooms for men and women. The rest of the east half of the building is devoted to cold activities–shops, equipment testing and storage. Hot work, heavily shielded, is carried on in the west half. At the border is a monitoring station to check workers for contamination.

Most of the structure is of reinforced concrete. Partitions between semi-hot cells are 6 in. of steel, whereas concrete shielding for hot cells is 3 ft thick. Hot cells also are lined with stainless steel coated with a strippable paint. Walls and ceiling are coated with a washable acid-resistant paint, and floors are finished with plastic tile

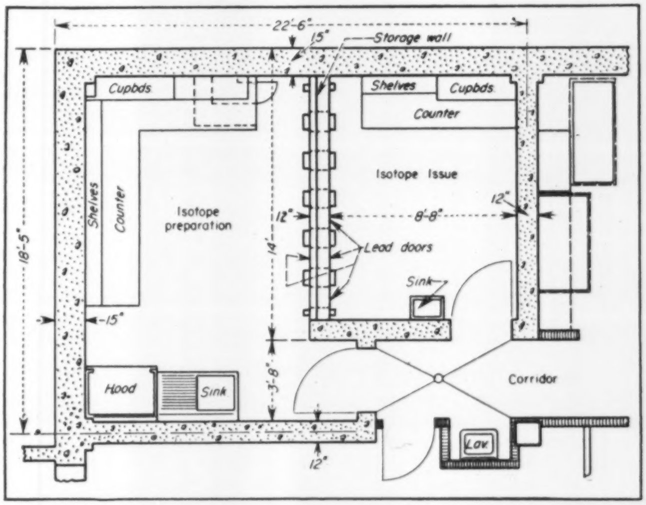


**RESEARCH FACILITIES** at Brookhaven National Laboratory are separated into "cold" areas (right) and semi-hot and hot works.

on acid-resistant mastic. Most of the piping and tanks are of stainless steel.

Hot wastes are stored until they have cooled off, either in tanks in the building or in a tank farm 250 yd away. When activity drops to a low enough level, the wastes can be pumped into the sewage system.

STORAGE WALL for hot materials in New England Deaconess Hospital is 12-in. thick concrete. Sliding doors are ¼ to 1-in. thick lead. Fay Foto



SMALL "HOT" LAB consists of two rooms in hospital basement.

**• Small hot lab**—Most designers will have more opportunity in the near future to design a small laboratory like the one in the three-story Cancer Research Institute of the New England Deaconess Hospital, Boston, than one of the proportions of Brookhaven. This Boston facility is a two-room basement suite in which staff members receive, prepare, store and issue radioactive isotopes for cancer research and treatment.

The design looks simple, but Dr. Shields Warren, director of the institute, Russell Cowing, its radiation specialist, and architects Coolidge, Shepley, Bulfinch and Abbott had to do a pioneering job.

Consisting of a preparation room and an issue room, separated by a storage wall, the suite was placed in the basement so as not to load the structural frame of the building with thick concrete walls. Exterior walls are 15 in. thick, interior shielding walls 12 in. The first-floor slab above is 8 in. thick.

**• Hot storage**—Hot materials are stored in six openings, each 10 in. wide, in a pass-through storage wall. The bottom 8 ft of this wall is concrete, the upper part, to the ceiling, cinder block. Concrete between openings is 12 in. thick.

On each side of each opening is a sliding lead door, counterweighted to close unless door-raising pressure is applied. Door thicknesses vary from ¼ to 1 in., depending on the activity of the material to be stored.

Hot chemicals also can be stored in a small vault on the floor of the preparation room. Weighing 260 lb., 30x26 in. in plan, the vault has concrete walls at least 12 in. thick and a 2 in. lead door.

**• Interior finishes**—The concrete floor is finished with two layers of tar-paper seal and a layer of cheap asphalt tile, which can be easily replaced or decontaminated by rinsing with a hose. Furniture and fixtures are wall-hung, leaving the floor unobstructed for cleaning. A deluge sprinkler is available for decontaminating personnel.

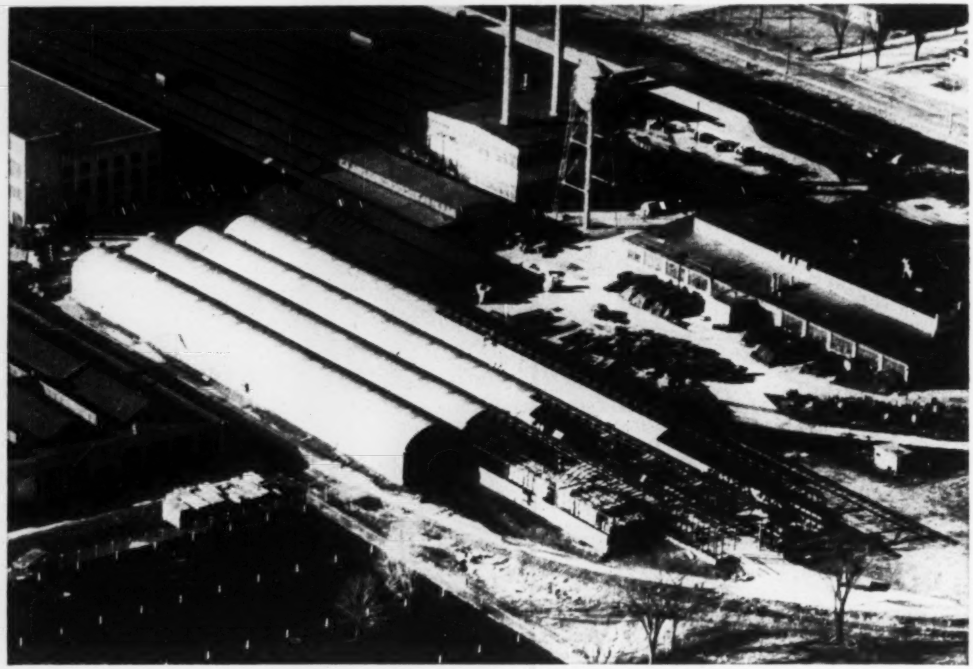
Interior surfaces other than the floor are coated with a strippable paint. Plumbing fixtures are stainless steel.

**• Hot sewage**—With waste disposal in mind, the designers placed the basement suite at the sewer outlet. This assures maximum dilution when hot materials are discharged, because sewage from some part of the building is bound to be flowing past that point at all times. The sewer carries 500 cu ft per day, mostly at a uniform rate from 8 am to 5 pm. For additional dilution, hot wastes are diluted to 10 microcuries per liter and then have to pass through a 25-gal trap similar to a grease trap, before being introduced into the sewer. No more than 200 millicuries may be discharged in a week.

Airborne wastes are drawn from a laboratory hood through a separate asbestos-cement stack and discharged by blowers at 100 fpm.

**• What goes on**—According to John W. Pierce, who handled the job for the architects, here's how the suite is used: Isotopes in highly concentrated form are delivered to the preparation room, for storage in the concrete vault. Highly skilled technicians dilute the concentrates into solutions of proper strength for treatment of patients or experiments. They store the dilute solutions in the storage wall.

In the issue room, less experienced personnel receive the hot material from the pass-through chambers and safely dispense it as needed. Mr. Pierce believes this type of storage will be copied widely by other institutions handling radioactive isotopes.



FACTORY STORAGE SPACE totaling 62,000 sq ft was secured quickly and economically with multiple-arch building.

# Now the long-span, high-ceiling Quonset

## New design solves parts storage problem when automobile plant is converted to aircraft engine manufacture

EVEN IN NORMAL TIMES the problem of providing additional storage facilities for existing manufacturing plants can be an undertaking of major proportions. But in these days of serious material shortages plus the high costs of both labor and material the problem becomes considerably tougher.

This was the situation facing Nash-Kelvinator Corp. this fall when it had to vacate a large warehouse at its Milwaukee, Wisc. plant to permit tooling up for the production of Pratt & Whitney aircraft engine parts. Automobile parts, cleaned out of the old building, couldn't be stored out in the weather; so a new storage building had to be provided in a hurry.

Nash-Kelvinator solved its storage problem—from the standpoint of both quick occupancy and economical construction—by the construction of a new Quonset type building of long-span multiple arch design. A total of 62,000 sq ft of storage space is contained in the four bays, two of which are 480 ft long, one is 440 ft, and the other is 320 ft long. As shown in an accompanying photo, the building has straight sides and a curved roof.

**• Materials were available**—Availability of materials was not a serious problem. The concrete floor slab needed only nominal wire mesh reinforcement. All structural framing is made up of light-gage cold-formed steel shapes; thus easier to get than hot-rolled structural steel. Roofing and siding are galvanized corrugated sheet steel and only a small amount of copper wire was needed for the lighting system. Heating, insulation and forced-air ventilation were not required.

Quick occupancy was accomplished by fast construction. After the floor slab of the one-story building had been completed, a 16-man crew erected the building in a little over 45 working days. Automobile parts began moving into one end of the building as soon as the first few sections of roof and siding were completed.

**• Similar to former Quonsets**—This new Quonset type building is quite similar to predecessor Quonsets, except for a longer span of roof truss and an increased clear height. Most of the framing details such as wall studs, purlins and bracing are standard sections which have been in production for several years.

Column spacing is 40 ft c-c lengthwise of the building and 35 ft 6-in. transversely to carry the 35-ft 6-in. span roof trusses. Clear height from floor to cross-struts between columns is 18 ft.

The 26-ga corrugated roofing and siding is nailed directly to steel purlins and vertical steel nailer-studs in the walls. These framing members, made by welding two or more specially formed steel parts back-to-back, contain grooves that deform and clinch nails driven into them.

The structural frame consists of the columns, the light-weight shop-welded roof trusses, transverse struts between columns, knee braces, wind bracing, and shallow longitudinal trusses between interior columns which support the truss reactions and the roof drains.

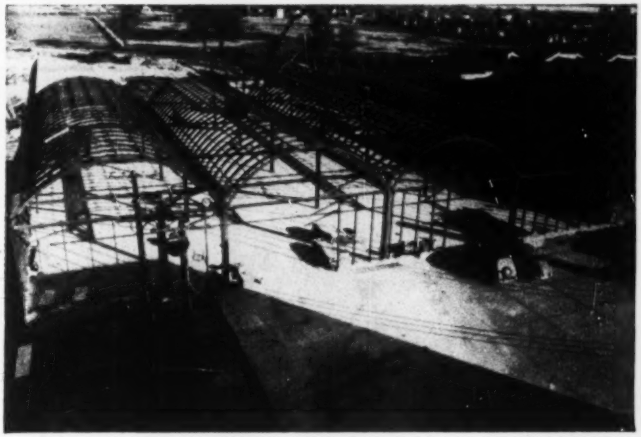
Columns are made up of two shop-welded C-sections of 14-ga material, welded together back to back. Trusses are curved to a 20-ft radius. They are shop welded in half-sections with provisions for a bolted field splice at the crown.

**• High-stress steel**—Trusses are made of high tensile strength steel having a minimum yield point of 50,000 psi and a design stress of 27,000 psi. Each curved chord is made of two hat-shaped sections, formed from strip steel and welded together to form a one-piece member.

Knee braces between transverse struts and columns are needed only in the two exterior bays. There also are wind bracing struts in the end panels of the building. The arch ribs rest on the lower chord of the longitudinal trusses between the interior line of columns, and on a cap-plate section atop the exterior studs.

The ribs that rest on the sidewalls are tied by diagonal braces to the transverse struts between columns that run completely across the building to the opposite wall. Unbalanced reactions are taken through the lines of the arch rib to the sidewall, then balanced out by the bracing system.

No length transverse expansion joints were needed but one would have been needed had it exceeded 480 ft. The gutters, located over the interior columns, will handle 8-in. of rainfall per hour, per square foot of roof area. The gutter is formed of 10 ft lengths of 14-ga steel, with ends lapped and are welded. Downspouts are at 240-ft intervals, starting 120 ft from one end of the building.



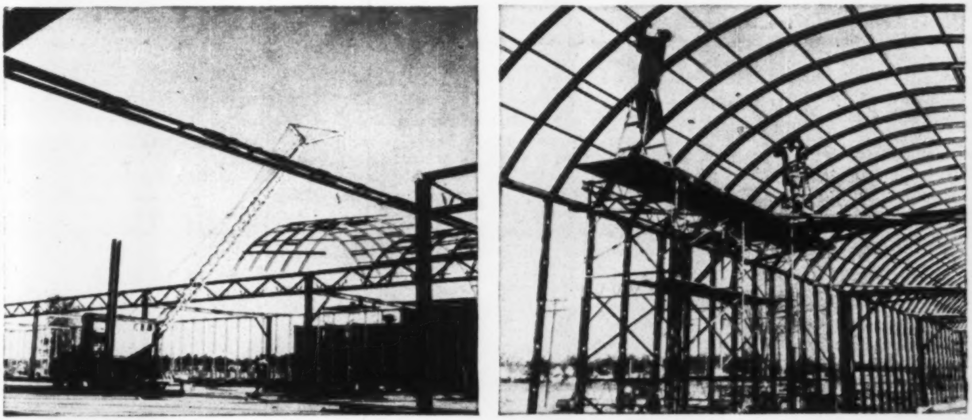
**WIDE STORAGE AISLES were made possible by using 35½-ft span tied-arch trusses supported on shallow, 40-ft long longitudinal trusses.**

**• Little overhead erection**—Very little overhead erection was needed. Columns were set up on their base plates and braced by the shallow longitudinal trusses and transverse struts—which constitute the "ties" for the multiple-span tied-arch roofs.

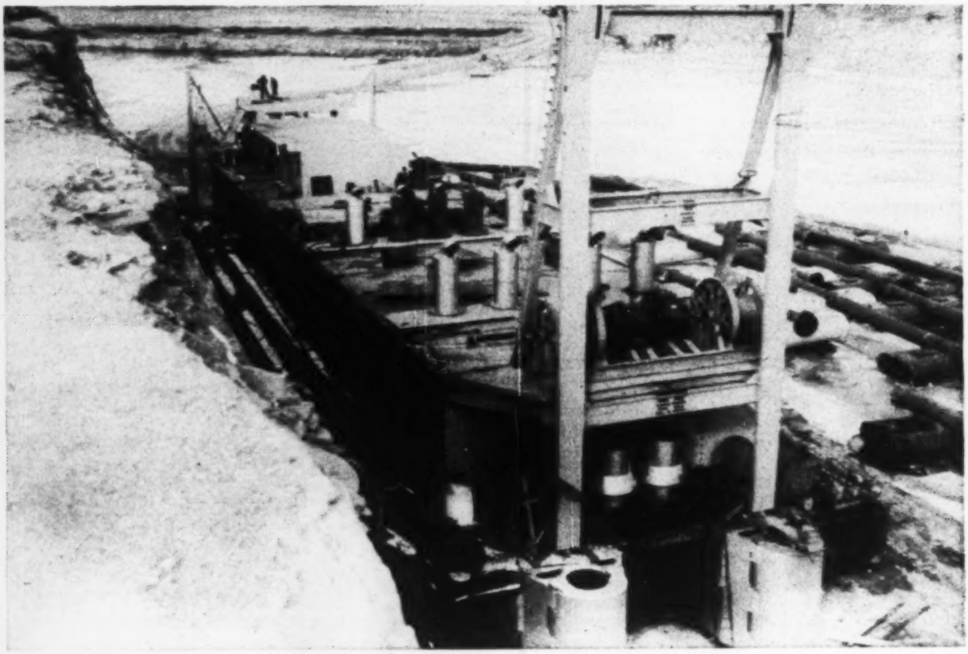
The curved roof ribs were assembled on the ground in sections of 5 ribs each. Purlins and bridging were added, using screw connections. A five-rib section was then hoisted by crane and field-bolted in place, leaving only end connections of purlins and bridging to be made to the adjoining 5-rib assembly. These connections were made from a pipe scaffold.

All steel components of the building were factory fabricated, prepunched where required for bolts and metal screws, packaged and shipped to the site ready for erection.

**• First of its kind**—This is the first building to be completed using the new long-span multiple arches—other than a so-called pilot model warehouse erected last year in Houston, Texas, by the Stran Steel Division, Great Lakes Steel Corp., which fabricates and sells the buildings. Others of this type now under construction include: a 34,000-sq ft (floor area) building for A. O. Smith Corp., Milwaukee; two 17,000 sq ft buildings in Elmira, N. Y.; and five buildings totaling 220,000 sq ft for the Boeing Airplane Co. in Wichita, Kan.



**ROOF TRUSSES were erected on the ground in 5-rib sections and hoisted into place (at left); leaving only end connections of purlins and bridging to be made from a traveling scaffold (at right).**



**Fast delivery schedule requires wintertime assembly job as . . .**

# Teamwork builds most powerful dredge

**Ole P. Erickson**
**Consulting Engineer**
**Tampa, Fla.**

PORTABILITY is the paradoxical feature of the world's most powerful suction dredge. Now in its first use, far inland at Fort Randall dam in South Dakota, it can be moved with relative ease to any place in the world.

Packing 10,950 hp, the 1500-ton "Western Chief" is completing excavation of the tailrace and approach channels for this flood control and power dam on the Missouri, and the Western Contracting Corp., the dredge's owner, foresees much more use for it.

For transportation, the dredge's heaviest single piece is a 125-ton section of the ladder. There are 20 hull sections.

Having a 36-in. suction line and a 30-in. discharge, the Western Chief was assembled early in 1951. Component parts of the diesel-electric dredge were built to plans and specifications furnished to Western Contracting Corp. by the Erickson Engineering Co., Tampa, Fla., consulting engineers specializing in dredge design and dredging problems.

**• Fast production**—The order to proceed with the design was given in May 1950 and the dredge began operation eleven months later, in April 1951.

As soon as the detailed plans and specifications of the component dredge parts were made, the contractor obtained quotations from various manufacturers throughout the United States and the orders were placed with the firms listed in the table.

As soon as the hull sections arrived at Fort Randall Dam, assembly began on a prepared site in the dry. The twenty hull sections fitted together without difficulty and were bolted up ready for installation of equipment.

After the deck house was assembled, the electric wiring and piping, engines, dredge pump, shafting, bearings, reduction gear and four 1500-hp electric motors were installed. The permanent installation of the diesel engine accessories and other equipment such as pumps, heat exchangers and oil purifiers, continued in the various hull sections and during moves will be left in the sections without dismantling.

**• Sectional hull**—The hull is of sectional construction 170 ft x 46 ft x 11 ft. The sections have varying lengths so that all transverse joints are broken. There are four double internal longitudinal watertight bulkheads and six transverse watertight bulkheads dividing the hull into a total of more than 30 compartments. This gives the dredge an exceptionally strong and practically non-sinkable hull. The deck house also is sectional.

Outside hull plating is ½ in. Inside bulkhead plating is 5/16 in. and ¼ in., all braced to conform to the American Bureau of Shipping and Lloyds of London requirements. Fastenings in hull, house, forward A-frame and spud gantry are 1⅜-in. alloy steel bolts. Hull bolts have special oil-resisting rubber washers.

Average freeboard under operating conditions varies from 36 in. to 45 in., with bow down about 6 in., or as desired, by fuel trim.

Six 1600-hp diesel engines and three 450-hp diesel engines—a total of 10,950 diesel horsepower—are on board. Each 1600-hp engine drives a 1200-kw DC generator. The 450 hp engines drive 300-kw generators, DC and AC. These generators are connected to common buses on the control switchboards so that the load may be distributed as needed on the dredge to pump, cutter, swing, or auxiliary equipment. Part of the engines may be shut down on short pipelines or in soft-material dredging when all the power is not required.

Auxiliary pumps and equipment are operated by alternating current, furnished by 2 200-kw motor-generators.

• **Ladder construction**—The ladder is of built-up girder construction designed to dredge hard materials, including soft to medium hard rock, and to withstand all stresses from the 1500-hp cutter motor. The ladder is 65 ft long and can dredge to a depth of 48 ft. The ladder head is fitted with a cutless rubber bearing 14¼ in. dia bore by 60 in. long. The ladder girder depth is 5 ft. Ladder trunnion pins are 6 ft long x 7⅜ in. dia. The 36-in. i.d. lined suction pipe is welded into the ladder, forming a strength member. Ladder is bolted together in two sections. Total weight of the ladder with cutter, cutter reduction gear, shafting and motor is 200 tons.

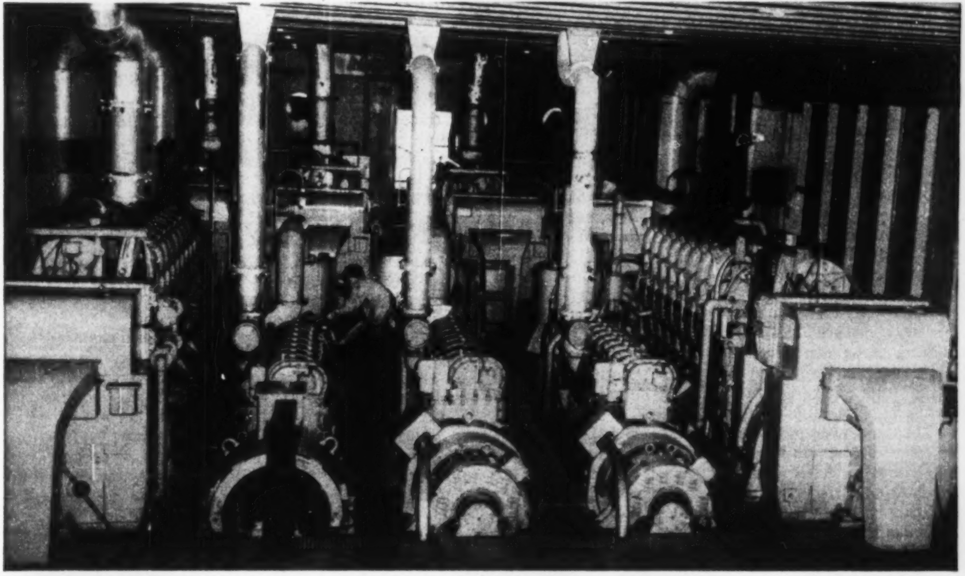
The A-frame is connected to and designed as part of the dredge deck house, tying into the spud gantry aft. Its main members run continuously, to serve also as a pump-and-engine-room crane track. The upper ladder hoist block is built into the top of A-frame.

Anchor booms are designed to pick

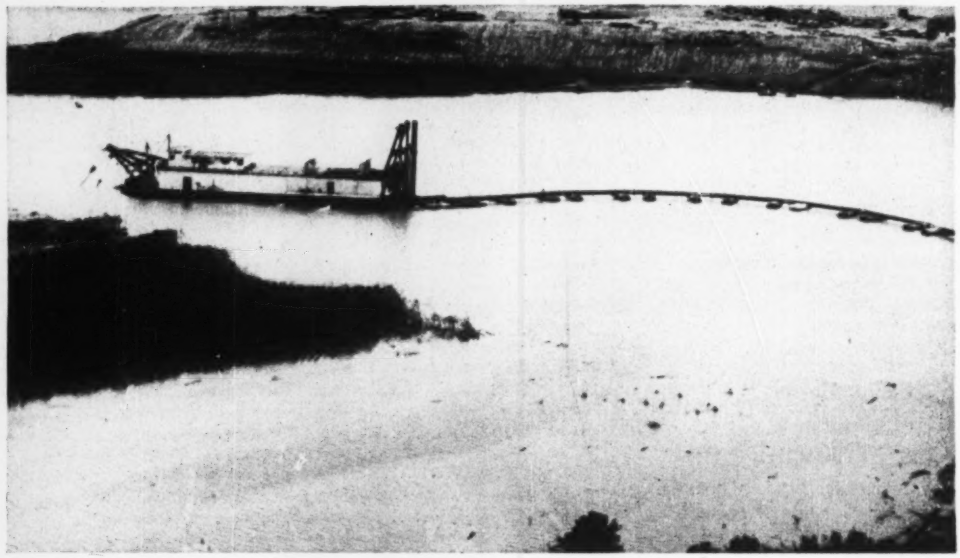
### "WESTERN CHIEF" MANUFACTURERS

An idea of the complex problems of assembling components for a big dredge is given in this table:

| Component | Manufacturer |
|---|---|
| 1. Hull | The Darby Corp., Kansas City, Kans. |
| 2. House, A-frame gantry | Consolidated Western Steel Corp., Los Angeles, Calif. |
| 3. Spud wells | Consolidated Western Steel Corp., Los Angeles, Calif. |
| 4. Spuds | Bethlehem Steel Corp., Quincy, Mass. |
| 5. Pump and motor base | Bethlehem Steel Corp., Quincy, Mass. |
| 6. Ladder and trunnions | Union Steel Co., Los Angeles, Calif. |
| 7. Swing and spud hoist gear | Pacific Coast Engineering Co., Alameda, Calif. |
| 8. Pump | Electric Steel Foundry Co., Portland, Ore. |
| 9. Cutters | Electric Steel Foundry Co., Portland, Ore. |
| 10. Thrust and journal bearings | Kingsbury Machine Works, Philadelphia, Pa. |
| 11. Pump reduction gear | Westinghouse Electric Corp., Pittsburgh, Pa. |
| 12. Pump and cutter motors | Westinghouse Electric Corp., Pittsburgh, Pa. |
| 13. Swing and spud motors and speed reducers | Westinghouse Electric Corp., Pittsburgh, Pa. |
| 14. Generators and switchgear | Allis-Chalmers Mfg. Co., Milwaukee, Wis. |
| 15. Diesel engines | Cleveland Diesel Engine Division, General Motors Corp., Cleveland, Ohio |
| 16. Heat exchangers | Young Radiator Co., Racine, Wis. |
| 17. Auxiliary pumps and compressor | Gardner Denver Co., Quincy, Ill. |
| 18. Cutter reduction gear | Western Pacific Gear Works, Los Angeles, Calif. |
| 19. Pipe | Posey Iron Works, Lancaster, Pa. |
| 20. Floating line pontoons | Eaton Metal Products Co., Omaha, Nebr. |
| 21. Dredge tender | Missouri Valley Steel, Inc., Leavenworth, Kans. |
| 22. Fuel barge | Union Steel Co., Los Angeles, Calif. |
| 23. Ball joints | Pacific Coast Eng. Co.; Electric Steel Foundry Co. |
| 24. Paint | Minnesota Mining & Mfg. Co., St. Paul, Minn. |
| 25. Controls | Westinghouse Air Brake Co., Wilmerding, Pa. |
| 26. Air lines | Aeroquip Corp., Jackson, Mich. |
| 27. Rubber flexible | Goodyear Tire & Rubber Co., Akron, Ohio. |
| 28. Bearings | SKF Industries, Philadelphia, Pa. |
| 29. Pipe, valves | Crane Co., Chicago, Ill. |
| 30. Electric cable | General Electric Co. |
| 31. Wire rope and fittings | A. Leschen & Sons Rope Co., St. Louis, Mo. |



**NINE DIESELS**, six of them 1600 hp (left, right and background) and three of them 450 hp (center) power dredge's generators.



**AT FORT RANDALL DAM,** the "Western Chief" dredged 2,350,000 cu yd of overburden, sand and chalk from the approach and outlet channels in 1951, stockpiling more than 1,000,000 cu yd for future use in the embankment.

up anchors with a 30,000-lb line pull. The mast backstays are tied into the forward A-frame and forward house corners. The anchor booms, 85 ft long (not installed in accompanying illustration) are fixed type with rotating top sheaves.

The spud gantry is made up of heavy WF-beams and H sections; in addition, angles are welded to the after side of the 14-in. H-beams, making them 26 in. wide so that spud hoist sheaves cannot become fouled under any conditions.

Spuds, of silicon alloy steel, are 42 in. dia, and 60 ft long, with built-up steel points. Holes in the spuds accommodate stop pins for the spud sheave counterweights to provide for any depth of water in which the dredge may work. Spuds weigh 30 tons each.

A two-drum, 120-hp spud hoist, on top of the after deck house and directly under the spud gantry, has a maximum lifting speed of 70 fpm.

• **Swing gear**—Located forward, the five-drum swing gear is driven by two 120-hp motors, which give speeds ranging from creeping to 150 fpm. Maximum swing-cable pull is 75,000 lb. The ladder drum is larger than the other drums so that the hoist cable will lie in a single layer, in machined grooves on the drum. Two other drums handle anchors, and the two remaining drums handle swing. Hoisting speed of ladder is 20 ft per min on a ten-part line.

The cutter on the ladder is driven by a 1500-hp, 600-rpm motor through a heavy-duty reduction gear that gives a top cutter speed of 36 rpm. The cutter shaft is 14 in. dia, of special high alloy steel with end of shaft upset so that it has a 14-in. dia at bottom of cutter thread. The cutter hub backs against a collar and hard babbitt washer on the cutter shaft, and can be easily removed by reversing the motor.

• **Main pump**—The pump has a 36-in. suction and 30-in. discharge, swings a 72-in., three- or four-vane impeller and can pass solids 18 in. dia. The pump shell is split and completely lined. The shell liner is in one piece and can be renewed by removing top half of pump casing. Both the shell liner and faceplate liners are made of alloy steel or special cast iron alloys, depending on the materials that are to be handled. The pump shaft is 14 in. dia and made from special high alloy steel. The runner is screwed onto the shaft and can be easily removed by reversing the pump motor. The pump is driven by four 1500-hp motors, through a reduction gear. Pump speed can be varied for best production, depending on length of pipeline and material pump, with a top speed of 425 rpm.

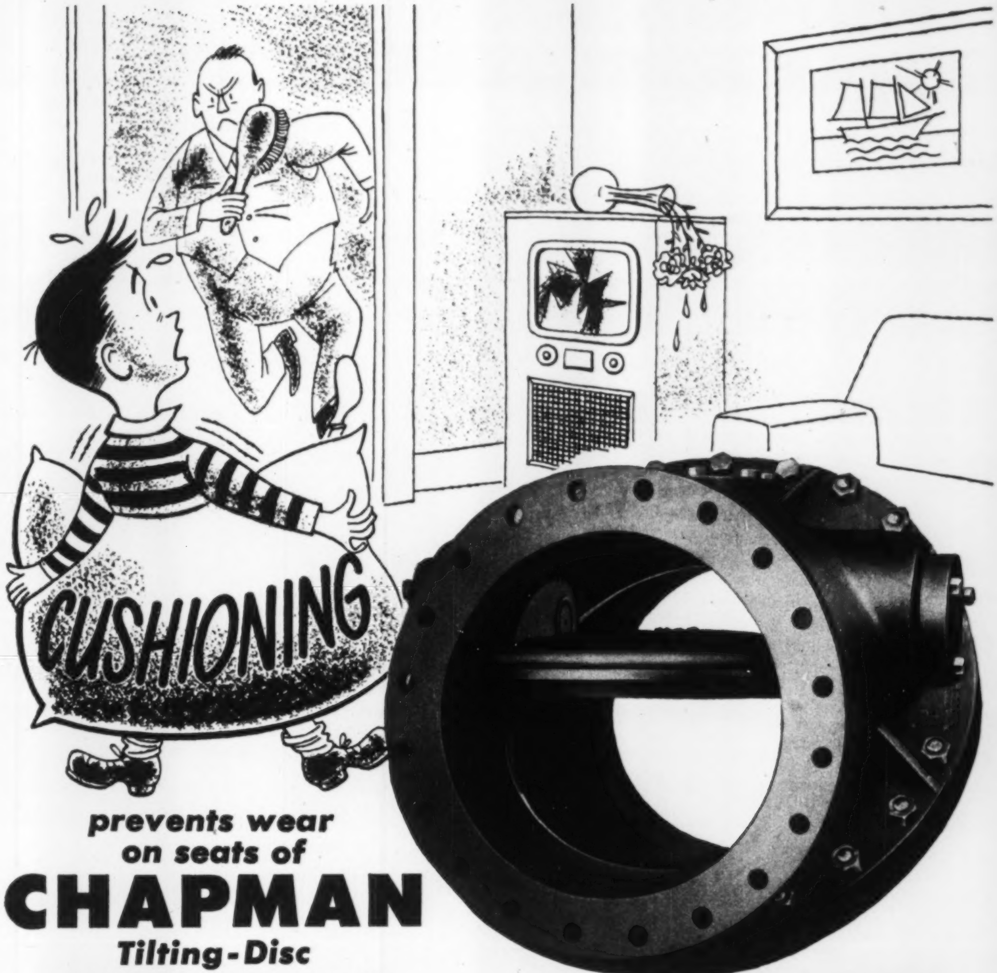
A Peri-jet gas ejector is located on the suction pipe to assist in priming the pump and to remove gases from suction pipe when handling gaseous materials.

• **Cutters**—The cutters for soft-material dredging weigh 15 tons, and are equipped with renewable wear edges on blades. The edges are spot-welded to the blades so that when worn they can be cut loose and replaced. These wear edges are of wear-resisting alloy steel. The rock cuters weigh 16 tons and have sockets for the insertion of 5 x 5-in. square alloy teeth of various types, depending on the material dredged. The cutters may be removed from the shaft by reversing cutter motor and unscrewing.

All controls for the dredge pump, cutter, swing and spud hoist are located within easy reach of the operator. The swing, ladder hoist and spud lever systems are operated by air-brake controls. The pump speed, cutter and swing is varied electrically as required for the type of material excavated, length of pipelines, and other factors. From the control room all of the operations of the dredge are directed by radio, telephone or signals, and there is clear visibility both fore and aft.

Separate offices are provided aft of the operating room for the dredge superintendent, chief engineer and inspectors. A large separate room is provided for the dredge crew. Separate toilet and shower facilities are provided for the officers and the crew.

• **Discharge**—The 30-in. pontoon line is of a standard type, equipped with alloy steel ball joints. The shore line is of the standard slip-joint type. A 350-hp. twin-diesel portable dredge tender and 25-ton portable derrick barge make up the auxiliary equipment.



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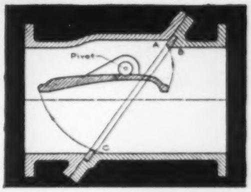

Cross-section of the Chapman Tilting-Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

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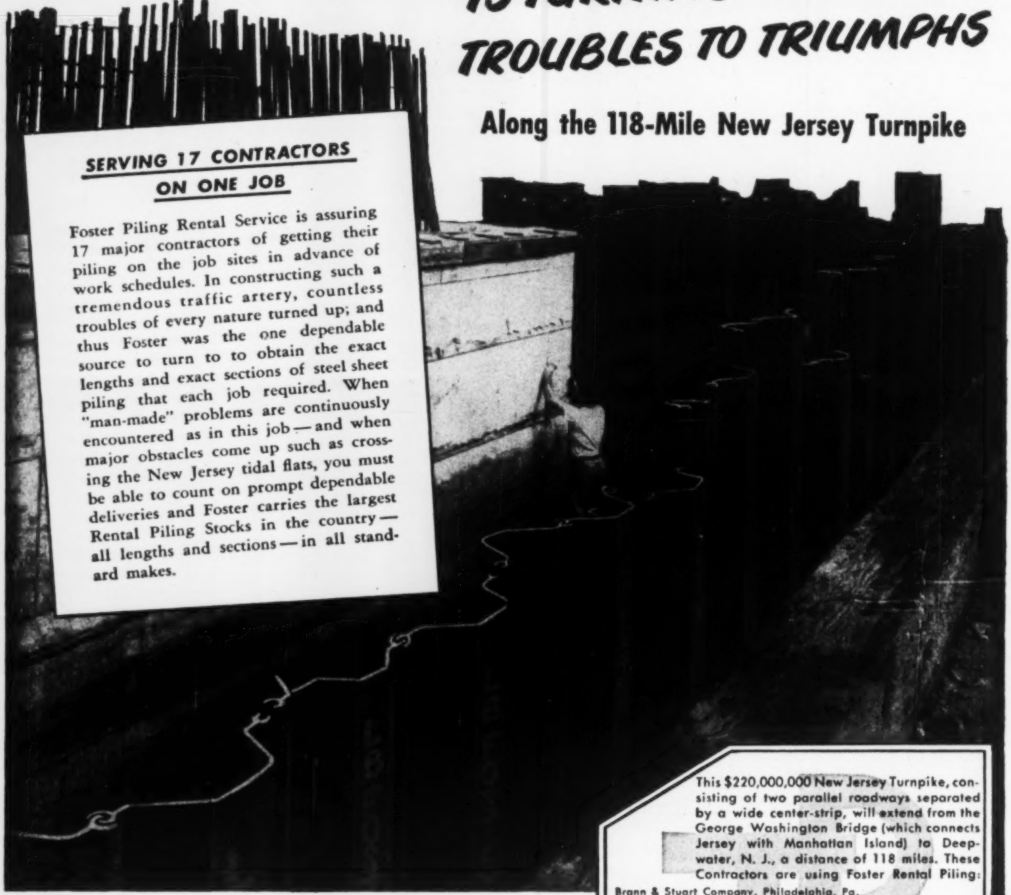

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Franklin Contracting Company, Newark, N. J.
Grow Construction Company, Inc., New York, N. Y.
Jaggard Engineering Company, Westmont, N. J.
Linde-Griffith Construction Corporation, Newark, N. J.
Napp-Grecco Company, Newark, N. J.
P. T. Cox Construction Company, New York, N. Y.
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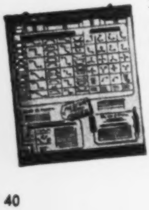

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**Ontario pushes Trans-Canada roads . . .**

# A tale of two highways

When you speak of Trans-Canada Highway in Ontario these days you speak of two roads—one a reality, the other an official plan.

Last summer the province spent a lot of money improving the reality, at the same time making strides in the plan's execution. The map shows where the two routes go in their toughest zone. Here they by-pass Lake Superior, which has some of the continent's ruggedest wilderness to its east and north.

**TEN YEARS OF PROGRESS**

**The northern route from North Bay to Fort William now has almost 20 times as much hot mix asphalt surfacing as it did in 1941. In that year there were 16 miles of hot mix and 130 miles of roadmix in the 741 miles. Today there are 295 miles of hot mix and 100 miles of roadmix. A substantial additional mileage is surface-treated.**

## Contractors at work on north route . . .

Today's northern route is like an end run in football; it is longer, but it avoids much of the rough going. A substantial portion of the 741 miles between North Bay and Fort William lies north of the Great Lakes-Hudson Bay divide. In fact, Cochrane is closer to Hudson Bay water (James Bay) than it is to the Great Lakes. Unlike the rugged territory below the divide, the northward slope is relatively flat. Known as the clay belt, it is cut by gentle streams and covered with poplar and conifers.

For the most part, today's northern highway has been in use for some time. Older roads reached northwestward beyond Cochrane, and northeast from Fort William toward Lake Nipigon. Then in the thirties, depression projects pushed the road west to Hearst and east to Geraldton. Both locations paralleled lines of the Canadian National Railroad.

**• Last gap**—There remained a 153-mile gap between Hearst and Geraldton, where the location departed many miles from the railroad. This stretch would be the final length in the first trans-Canada highway. It already was possible to reach tidewater both ways from this link.

Work between Hearst and Geraldton began in 1939 and was finished in 1943. Today, eight years later, the Hearst-Geraldton link includes 132 miles of the finest gravel road on this continent; the rest is new black-top.

**• An editorial trip**—But the report on road conditions gets ahead of the story. Late in the summer this year an ENR editor who had heard that there were many paving contracts under way on the Trans-Canada Highway took the last-link route. His notebook tells about the 1951 work up there.

A sign at the outskirts of North Bay announced that this was the Trans-Canada Highway. The good road plunged quickly into the bush. A few miles above the city, Standard Paving, Ltd., of Toronto, was resurfacing 20 miles with bituminous concrete on a new base. Standard had an asphalt plant at the midpoint.

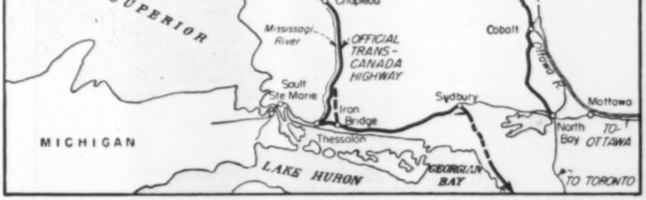
Just below Cobalt, Tomlinson Bros., Ltd., of Toronto, had 7 miles of realignment and other improvements, including new drainage structure. In rough Pre-Cambrian country, the work included some heavy rock cuts. An asphalt plant was being set up at one point beside the road.

(Cobalt's slogan is, "Where all the silver comes from." A miniature mine tipple is the Chamber of Commerce's information booth.)

The road was pretty good above Cobalt, much of it going through settled farmland. Then there was new macadam on a cut-off below Kirkland Lake. Beyond Kirkland Lake, for 20-odd miles, a brand new road was under construction. Most of this was new location, partly cutting curves of the old road and partly parallel. Work included clearing, rock cuts and fills, new drainage structures and some swamp-filling (muskeg removed and replaced by good fill). About half way along the new work the Great Lakes-Hudson Bay divide occurs. (El. 1060 ft.) The construction equipment on this stretch of work bore the names of the two contractors: Ft. York Const. Co., Toronto, and Caswell Const., Ltd., Kirkland Lake.

**• A real detour**—Fifteen miles farther, beginning at Matheson, McNamara Construction Co. had a 12-mile hypotenuse job, which was not visible because a detour took the reporter 17 miles along the triangle's side. Most of the remaining 45 miles into Cochrane was good surfaced road.

For several miles west of Cochrane



TOUGHEST ZONE for Trans-Canada highway construction in Ontario is country north and east of Lake Superior. Northern route was "holed through" in 1943.

**MUSKEG SWAMPS** must be crossed by north-country roads. Here Fort York Const. Co. is filling with solid material—near Kirkland Lake. (Ontario Department of Highways photo.)

**HOT MIX ASPHALT** eventually will cover all of Trans-Canada Highway. This crew is paving on the northern route a mile west of Kapuskasing. (ENR staff photo.)

the going was quite rough, on graded earth. Five miles out, a new bridge was going in to replace a Bailey Bridge. Then four miles beyond began 17 miles of reconstruction, including long curves at former turns. The reporter drove slowly along the rough grading, noting three contractors' names on equipment; Klimack Const., Ltd., Swastika, Ont.; P. Girard, Cochrane; and Patterson and Hanes.

Except for a bridge and relocation to eliminate a one-lane crossing of a paper mill-dam at Smooth Rock Falls, the next job began 21 miles beyond the reconstruction. This work, practically completed, consisted of a new bituminous concrete roadway. Extending 20 miles, it was done by Miller Paving, Ltd., Toronto. Miller also had minor work on older black-top in the next ten miles, leading into Kapuskasing, and he was resurfacing three miles of the road westward to that city's airport. In the next 58 miles, into Hearst, one bridge was under construction.

Up to this point, most of the country had been farmland, with frequent settlements at stations of the Canadian National.

• **The last link**—Beyond Hearst, for 137 miles to Longlac, the broad gravel "last link" road passed through almost untouched wilderness. The going was smooth, with little but a few long curves to relieve the monotony of the clay-belt terrain. One sign caught the reporter's fancy. It was: "Watch for Moose." (Instead of the familiar "Deer Crossing.") However, no moose were seen.

Beginning at Longlac, the highway had been resurfaced for a distance of 40 miles. The job, done by Eric Reilly, of Toronto, was so new that some bituminous paving equipment still remained beside the road. It was in this section that the terrain changed back to rugged and rocky.

• **The rest of the route**—about 160 miles to Fort William—was good highway, built in other years. Near Lake Superior, the "black-top" was red, the same as the local country rock from which its aggregates were crushed. This reminded the reporter that road material throughout the journey varied with available local materials. In rugged country, the preponderant material was crushed rock; as the country flattened out, sand became the prevailing material.

Roadways were wide two-lane in zones of newer construction, narrow in older zones, as might be expected.

## "Shortest practical route" is official . . .

Modern standards have been prebuilt into the new official Trans-Canada Highway. Agreements between the provinces and the federal government specify construction and route standards as well as financial participation by the parties.

In December, 1949, Parliament passed the Trans-Canada Highway Act authorizing the federal government to contribute $150 million toward a 5,100-mile, 2-lane paved highway across the Dominion. Upon agreement to build the route in their territory, provinces would receive half the cost of new work, plus half the construction cost (since 1928) of existing roads incorporated in the route.

Ontario signed its agreement in April, 1950. (By August, 1951, only Quebec and Nova Scotia had not signed), thus accepting the following as standards for construction:

1. Minimum right-of-way width 100 ft, except in densely populated zones, where 66 ft is acceptable.
2. Pavement width the range 22-24 ft (Ontario's pavements will be 22 ft).
3. Shoulder width 10 ft, except where construction economy makes 10 ft impossible—here minimum is 5 ft.
4. Curvature maximum under ordinary conditions, 6 deg with 3 deg desirable.
5. Grade maximum 6%, except for short distances up to 8%.
6. Sight distance minimum 900 ft (by Ontario standards).
7. Bridge curb-to-curb width: 40 ft on short bridges; 24 ft on long bridges.

Road cross-section calls for a 12-in. granular sub-base, topped by 3 in. of hot mix paving and surface-treated shoulders.

• **Where it goes**—The agreement also says the highway should be "the shortest practical east-west route."

According to W. J. Fulton, director of surveys, Ontario Department of Highways, in an article in "Roads and Engineering Construction," the emphasis in Ontario is on "practical" rather than on "shortest."

In arriving at a route selection, sixteen different locations were studied.

The shortest route passes almost entirely through a northern-Ontario area, which contains 91% of the province's land, but only 15% of the population and 10% of the motor cars. Because little more than 2% of Ontario auto trips are for more than 100 miles, it was decided that the modern all-weather route should be available for short-trip use by many residents of the more populous southeastern and southwestern regions of the province.

Accordingly, after passing from Hawkesbury westward to Ottawa, the selected route veers southwestward, primarily on existing locations, to Peterborough (25 miles from Lake Ontario) and Lake Simcoe, before heading northwest along Georgian Bay to Sudbury.

• **Pioneering job**—There are important pieces of new road now under construction along Georgian Bay, but the real pioneering job is to take place between Sudbury and Fort William. (Beyond Fort William an existing road, product of the 1930's, will take trans-Canada traffic onward to the Manitoba line).

Here, instead of making the end-run around Lake Superior's rugged back country, Ontario will bull it through.

West of Sudbury the route follows the present North-Bay-Sault Ste. Marie highway as far as Iron Bridge or Thessalon. The choice of a northward jumping-off place depends on a decision not yet made by the Hydro Electric Power Commission of Ontario: whether to develop power in the Mississagi Valley. If not, the province will reconstruct and partially relocate an existing dirt road from Thessalon to Chapleau. Otherwise, it will be necessary to back up to Iron Bridge and build a cut-off as shown on the map. The cut-off terrain, which has vertical rock cliffs 400 or 500 ft high, now is under study in an attempt to find a suitable location.

From Chapleau to White River, the highway will be completely new, paralleling the existing Canadian Pacific Railroad. (Closing this gap has been part of Ontario's long-range plan for some time.)

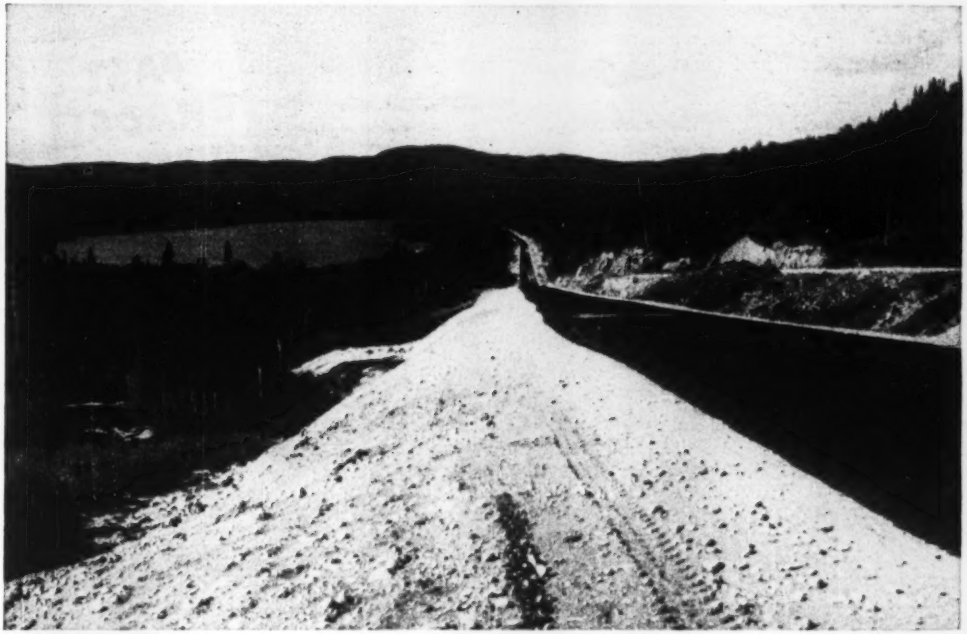
The rest of the route also parallels the CPR, joining today's actual trans-Canada highway at Nipigon. From White River to Schreiber, the road is under construction. Mr. Fulton says the province is trying to salvage $4,500,000 worth of grading that was done on this section in 1936-37. A paved highway exists from Schreiber to Nipigon.

• **Plans hastened**—The bulk of Ontario's official Trans-Canada route makes use of existing roads, it can be seen. And the new work mostly had been planned before the agreement was signed. There can be no doubt, however, that the Dominion's act, providing federal aid money, has hastened the project.

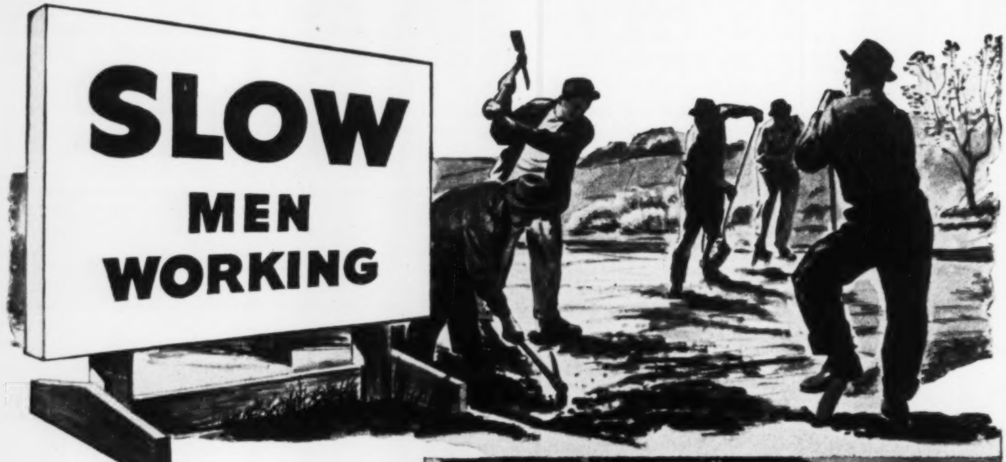
The agreement gives construction priority to work on sections that have not been paved. Reconstruction, to bring existing pavements up to Trans-Canada agreement standards, is to follow. This priority is consistent with another stipulation: that work shall not begin on an existing highway until its previous construction costs has been agreed upon. The federal government reimburses half of this cost. The eight provinces are expected to submit their claims by the end of 1952. (Ontario's claim: $15,400,000.) Completion of the Ontario route is scheduled for the end of 1956.

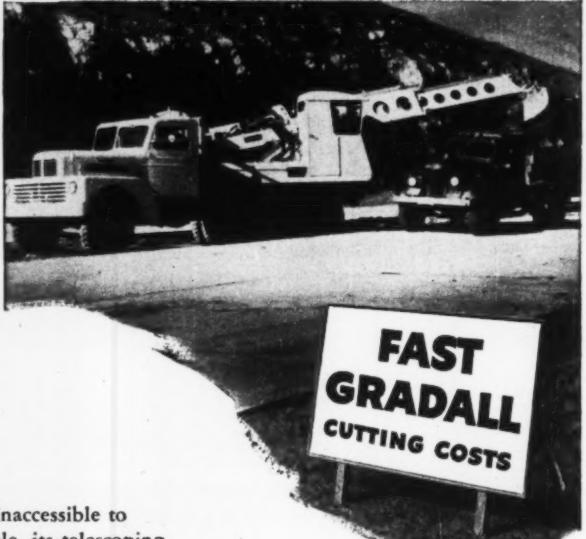
Total length of Ontario's share of the Trans-Canada Highway is about 1386 miles.

Because of the route's southward bend, it is somewhat longer than the shortest possible route. When the road is completed it will be possible to go from Hawkesbury to the Manitoba line over a 1300-mile route; along the Ottawa River to Mattawa, then through North Bay to Sudbury (mostly Route 17), then on to the official route. The same route, as far as North Bay, then westward via the northern route, amounts to 1340 miles.



OFFICIAL TRANS-CANADA highway construction in 1951 included this stretch of road near Lake Superior's north shore, a few miles east of Schreiber, Ont. (Ontario Department of Highways photo.)





**Are you satisfied with your present hand labor costs? If you're like most construction men, your answer is probably an emphatic "NO"!**

**Hand labor *is* expensive—because it's *slow*.**

But that's *not* the situation when you put a Gradall on the job!

The operator works with large tools, quickly changed for each particular job. He moves large quantities of earth rapidly, with such precision that clean-up hand labor is practically eliminated.

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# Filter oddity is 35 ft deep

What well may be the world's deepest trickling filter went into operation this summer in Cumberland Falls State Park, Ky. It stands alongside a sheer cliff 35 ft high over which sewage had to drop anyway to reach the Cumberland River.

An unusual structure, it was designed and built to fit rather unusual conditions of sewage treatment (i.e., vertical drop through the entire plant totals 200 ft).

Sewage comes from a tourist lodge and a group of resort cabins. Past (and bitter) experience had shown that septic tanks were inoperable at the site. Soil absorption was out. The rugged terrain is mostly massive sandstone with very little soil covering of any kind on it.

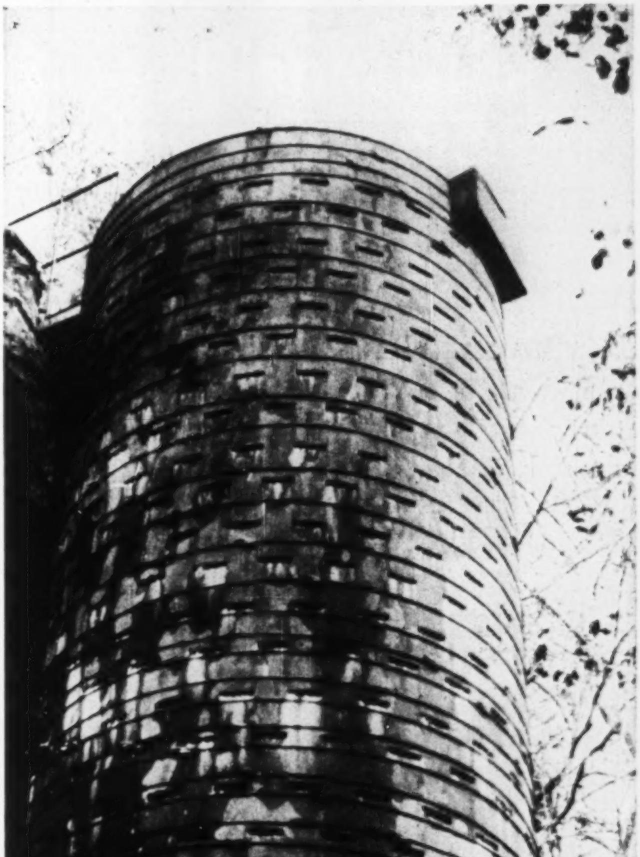
In earlier attempts to dispose of sewage to the scant soil it was found that the stuff sank to the top sandstone surface, then flowed along this surface to the cliff—there to spill out into the natural waterfalls that contribute so much to the beauty of the park. It was a real health hazard for those sightseers who were inclined to believe that the falling water was pure. Above-ground disposal was a must.

• **Cheap to build**—For economy and simplicity, a bar screen, an Imhoff tank with sludge-drying beds and the trickling filter were selected. The whole installation cost $16,447.

Secondary sedimentation was thought unnecessary since effluent discharges to the fast flowing Cumberland with its ample dilution. Another factor ruled against secondary settling: it would have been costly to return secondary sludge up the steep sloping terrain.

When it came to building the deep rock filter to utilize the sheer 35-ft drop nature had provided, its odd proportions suggested an unusual construction. A 14-ft diameter and such great height suited the filter to silo construction methods. Typical farmer's silo materials were used: prefabricated concrete staves (tongue and groove) tied by steel hoops coated with asphalt.

This type construction cannot be made watertight anyway, so it was modified by leaving 2-in. spaces between butt-ends of the vertical staves. This increases the filter's air intake. The open structure precludes backflooding for filter fly control, but it is



IT'S A TRICKLING FILTER, SUH, they grow 'em tall in Kentucky.

hoped heavy chlorination and insecticide application will control fly larva.

**• Open for inspection**—Because it is so deep and because bacterial bed growth can be observed and removed at any foot level of depth, the filter may yield valuable data to the researcher. There are neither the facilities nor staff at the small installation to obtain any such data, but the consulting engineers who designed it are hopeful that some research organization may take an interest. They express confidence that the owner, Kentucky's Division of Parks, State Office Building, Frankfort, would welcome such interest.

As yet the plant has not received full load, having just recently gone into operation. A representative loading on the filter will not be experienced until next summer when the tourist population returns.

**• Design factors**—Average flow for which the plant was designed is 15 gpm; maximum is 75 gpm. Maximum loading strength is expected to be about 35 lb per day BOD. Here are capacities of the various plant units:

(1) Imhoff tank flow channel—254 cu ft, 2.11 hours retention at 15 gpm

(2) Imhoff digestive capacity below slot baffle—840 cu ft or 3½ cu ft per capita for 240 population

(3) Sludge drying beds—360 sq ft

(4) Trickling filter—4,620 cu ft of media with capacity 42.7 lb BOD per day at rate of 0.25 lb/cu yd of media

Howard K. Bell Consulting Engineers, of Lexington, Ky., designed the plant. Grant S. Bell, partner in the firm, supplied information on which this article has been based.

# Ohio River Valley states cut water pollution

CINCINNATI—Thirty-nine percent of the sewage waste of cities in eight Ohio Valley states is receiving predisposal treatment.

This was reported last week by the Ohio Valley Water Sanitation Commission and listed Illinois, Indiana, Ohio, New York, Pennsylvania, Virginia and West Virginia. All are signatories to an inter-state compact agency established in 1948 to promote a regional program to clean up the water.

But Sanitation Commission Chairman Clarence W. Klassen said that much faster progress must be made in reducing pollution. "If we are to catch up with the long deferred needs and also keep pace with the population growth and industrial expansion in the Ohio Valley."

**• Ohio's program**—Focusing attention on Ohio, this is what one state is doing in its drive against water pollution.

A newly authorized Water Pollution Control Board has announced plans to use a mobile laboratory to make stream surveys in their fight against violators of the Deddens antipollution act. The drive is being led by Ohio Attorney General C. Williams O'Neill who earlier engaged in a campaign to halt the dumping of raw sewage into streams. He required some 30 cities to start programs for sewage treatment plants and reported citations against 25 Ohio industries for pollution. O'Neill has support of the Water Pollution Control Board, but he has made it clear he will withhold court action if offending firms co-operate in proper prevention.

Last October the Ohio Dept. of Natural Resources listed 75 firms polluting streams by dumping such wastes as excessive coal dust, chemicals, paper, distillery and dairy wastes, oil leakage and canning factory wastes.

**• Survey**—The Water Pollution Control Board has planned an educational campaign that includes the plan for the mobile laboratory costing $31,000. The lab will consist of a trailer, tractor and equipment for stream surveys and will issue permits which will place strict controls on those dumping wastes into streams.

**• Research**—The Ohio Health Dept. has also signed a contract with Ohio State University for operation of a pilot treatment plant on a research basis. State legislature has provided $75,000 for the project and the federal government has appropriated an additional $12,000. One purpose of the plant will be to determine how water contaminated with copper and other substances can be taken into a municipal treatment works without making the works' operation useless.

**• Legislation**—The new Deddens act will also have a great effect on water pollution control. Under the act, dumping raw sewage into lakes and streams will be illegal after Sept. 27, 1952. This provides a year of grace for corrective measures. Future violations are subject to $500 fine or one year in prison.

## Salt in Salt Lake makes sewage salty

SALT LAKE CITY—To dispel any doubts about it—and they had been prevalent in Utah—consulting engineers have taken pains to convince the Salt Lake City Commission that salt waters are not self purifying. Salt can't stabilize raw wastes.

In an initial progress report, submitted orally, W. C. Roberts of the engineering office of Clyde C. Kennedy, San Francisco, reported "extensive evidence of sewage pollution around the lake" as the result of bacteriological tests carried out with a mobile laboratory.

He told the commission that "sewage pollution has spread for considerable distances from city outfalls." And he emphasized that "studies refute the assumption that harmful bacteria do not thrive in the waters of the Great Salt Lake."

The studies, expected to lead to the establishment of primary and secondary treatment plants by Salt Lake City and other communities along the eastern shore, stem from recent recognition that the half-century old practice of pumping raw sewage into the 75 x 50 mi. Great Salt Lake constitutes a serious health hazard to lake beaches and some 300,000 persons in Utah's most populous region.

Meantime, a good deal of attention has been focused on the rise and fall of the water level in the Great Salt Lake. The U. S. Geological Survey recently reported the lake level down 1.5 ft from a 20-yr high registered in June.

Interest in the level of the lake centers around the sewage pollution problem. When the 1951 highwater mark was set, lake waters threatened to top a dike built during the past two years, linking the mainland with Antelope Island. Salt Lake City's sewage is now mostly contained behind the diked off sector of the lake, and an overflow would result in serious pollution of beaches used by thousands of tourists adjacent to transcontinental U. S. Highway 40.

Whether the level is rising or falling, the 35 mgd of raw sewage Salt Lake City feeds the lake, along with sewage flows from towns in the entire Utah Lake and Great Salt Lake valleys, constitute a health menace. Surveys expected to lead to either individual plant installations, or possibly to a basin-wide scheme for sewage control, are already under way in Ogden and the Provo area as well as in Salt Lake. Federal assistance in the engineering and construction of such facilities will be sought, according to municipal officers involved.

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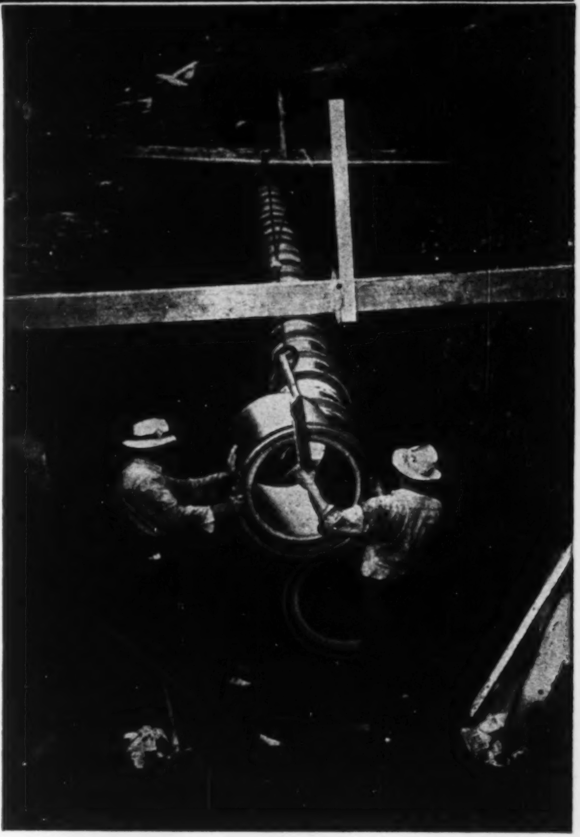

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# INTERNATIONAL

## U.S. and British oil companies will build multi-million dollar refineries in India

New Delhi—On Nov. 30 the government of India signed an agreement with the Standard-Vacuum Oil Co. for the first of three proposed foreign-owned, multi-million dollar refineries in India, an agreement which it is hoped will presage new and profitable relationships between India and the U. S. and Great Britain, in the industrial field.

The agreement is that the American oil company, on the understanding that there will be no nationalization for 25 years, will build a $35,000,000 refinery in Bombay in return for various concessions on customs duties and otherwise.

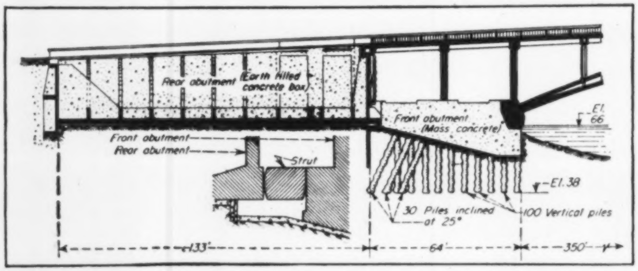
It is also expected that the Caltex Oil Co. of the United States and the British Burmah-Shell Co. will soon conclude similar arrangements whereby a large investment is to be made for the building of a refinery and a shipbuilding center on the east coast at or near Vizagapatan, while the Burmah-Shell interests will operate at Bombay on the west coast.

In about four years the three new refineries will be producing between 2,000,000 and 3,000,000 tons of refined petroleum products annually.

Crude oil for the new plants can come from the Middle East, Burma and Indonesia as well as India.

The significance of these developments is that efforts are being made to compensate for the loss of Iranian oil; they may form a pattern for future profitable relations between India and American and British industry; while for India herself there is promise that she will make a substantial gain in foreign exchange by the vast expenditure of foreign capital in India.

Standard Vacuum will retain 75 percent of the stock. Indian investors may buy 25 percent of the total investment.



SPECIAL REAR ABUTMENT with large frictional resistance supplements conventional abutment in opposing arch thrust.

## Friction takes thrust of French arch bridge

Difficult foundation conditions at the site of a new concrete arch bridge across the mouth of the Oise River—at Conflans about 15 miles northeast of Paris, led to the use of abutments that furnish 40% of the resistance to the arch thrust through friction on the supporting soil. Conventional type abutments on piles carry the ends of the arch, but each of these front abutments is backed up by a rear box-type abutment, 133 ft long, from 45 to 60 ft wide and about 25 ft high. The boxes are filled with earth, and their back walls bear against the earth ramps of the approaches. The 8,650 sq ft floor of the boxes bears on clay as do the 62 x 66 ft front abutments although the piles under the latter are driven to a sand and gravel stratum. The total thrust to be resisted is 4,300 tons. The resulting forces:

| | |
|---|---|
| Inclined piles | 820 tons |
| Friction on sides of front abutment | 170 |
| Friction on sides of rear abutment | 220 |
| Friction on bottom of rear abutment | 1720 |
| Earth thrust against front abutment | 1810 |
| Earth thrust against rear abutment | 1355 |
| Total resistance | 5255 tons |

The transfer of thrust from the front to the rear abutments is accomplished by interposing between them a concrete strut whose curved bearing edges keep the load centered even though there may be some differential settlement.

The bridge, built to replace one destroyed in the war, is composed of a

(*Continued on page 51*)

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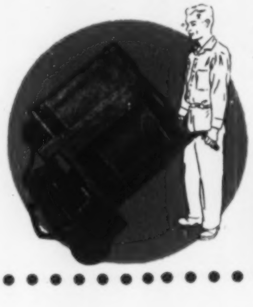

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330 ft span fixed arch of hollow section. It has a rise of about 31 ft. Its 32 ft width is divided into four compartments by longitudinal walls. The roadway, resting directly on the arch over the central part of the span, is supported elsewhere by bents of four circular columns arranged in pairs. The columns are made larger at the top than at the bottom for effect.

Designed by the Services des Ponts et Chaussees of the Seine–et–Oise Department, the bridge was built by Entreprises Boussiron of Paris.

## African power project attracts U. S. attention

LONDON — Establishing hydro-electric power in Rhodesia is gaining increasing attention among U. S. interests. This interest centers in capital investors and government agencies wishing to develop new sources for scarce minerals and metals. But location of a hydro-electric project in this rich sector has created constant bickering between the areas of Northern and Southern Rhodesia.

Since 1946 the controversy has raged over whether the project should be at Kariba Gorge on the Zambesi River or at Kafue Gorge on the Kafue River in the north. The decision is vital to both territories. Either location would benefit both areas, but the one with the most power would boom fastest.

After years of study, a special hydro-electric power commission named the Kariba Gorge as the most practicable, and Northern Rhodesia immediately disputed the choice. They claimed a greater need than would be allowed them under the commission plan and set about to prove that the northern location would be a cheaper project with a greater initial output.

Though the southern location has a better argument on the basis of present need, Northern Rhodesia has a strong case in arguing their potential. In addition, the north claims its expansion would be more desirable in light of the territory's almost exclusive reliance on copper. According to some colonial officials, next year's income in Northern Rhodesia will nearly equal that of its southern neighbors.

Many attempts are being made to bring the two territories into agreement, but informed persons in London and Africa think that the only compromise will be two projects built simultaneously. Such a compromise is not impossible from the financial point of view.

The special commission has recommended that the Kariba Gorge project be financed by the Joint Rhodesian Power Commission through loans from the British government and other sources including the World Bank.

That bank has already indicated its interest by sending a three-man mission to Africa to investigate the project. But a second and equally important purpose of this mission is to study the overall political and economic situation of the two territories.

The Northern Rhodesian copper belt also has captured the interest of American capital during the last few years, according to the local government, but ECA made a better offer. With a virtually guaranteed market for power from private consumers, there are indications that some of this capital might be interested in power instead of copper.

## Wind tests are made for new Severn bridge

Specially designed wind-recording apparatus has been made by the Meteorological Office for the British Ministry of Transport to provide information about wind strengths and directions in the locality of the proposed new suspension bridge over the River Severn, near Chepstow.

Several problems had to be overcome in the design of the apparatus to meet the special requirements of the bridge engineers. Chief among these was the measurement of winds, inclined to the horizontal, which persists over periods of half-a-minute or more. A method was devised whereby the vane recording such winds does not respond to momentary changes of inclination but only to those that persist. Another vane, on the same instrument automatically records direction and strength of the wind in the horizontal plane. The complete instrument automatically records a detailed account of the behavior of the wind from all directions.

## UN health unit advised by group Wolman heads

World Health Organization's Expert Committee on Environmental Sanitation met in Geneva, Switzerland, last month and urged training and use of sanitation specialists by health agencies everywhere.

The nine-member group within WHO, the UN's health unit, is headed by Abel Wolman, professor of sanitary engineering at Johns Hopkins University, Baltimore.

Emphasizing the complexity of problems of impure water, unsafe milk, rodents and insects—especially in underdeveloped areas—the committee laid down criteria for training and utilizing sanitation personnel the better to meet present needs.

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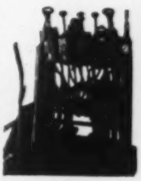

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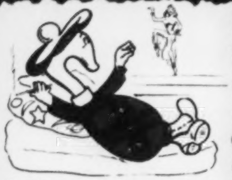

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# Control grievances of contractors aired in Dallas A.G.C. resolutions

Restrictions imposed by governmental agencies regarding the use of building and construction materials, together with the restraints that have been placed upon credit in the financing of construction work, have materially reduced the volume of private and public construction to the point where it is only a small percentage of normal.

This is the gist of complaints registered by the Municipal Contractors Association, A.G.C., Dallas, Tex. These complaints were embodied in a series of resolutions calling the attention of the national officers of the Associated General Contractors of America to the following contentions:

That the federal government restrict itself to the role of acting as the taxpayers' agent in engaging in private business enterprise, and that the professional services rendered by government bureaus in connection with construction be reduced to a minimum.

That private enterprise be utilized in any government construction programs and that force account work be held to the barest minimum commensurate with the requirements imposed by emergency work and maintenance.

That the inventory of materials and restrictions and also controls on credit be reviewed by responsible congressional committees to determine the exact needs of the defense effort in releasing and relaxing existing inventories of materials and restrictions, as well as controls on credit to provide for a volume of private and public construction commensurate with the needs of the area and in keeping with national requirements.

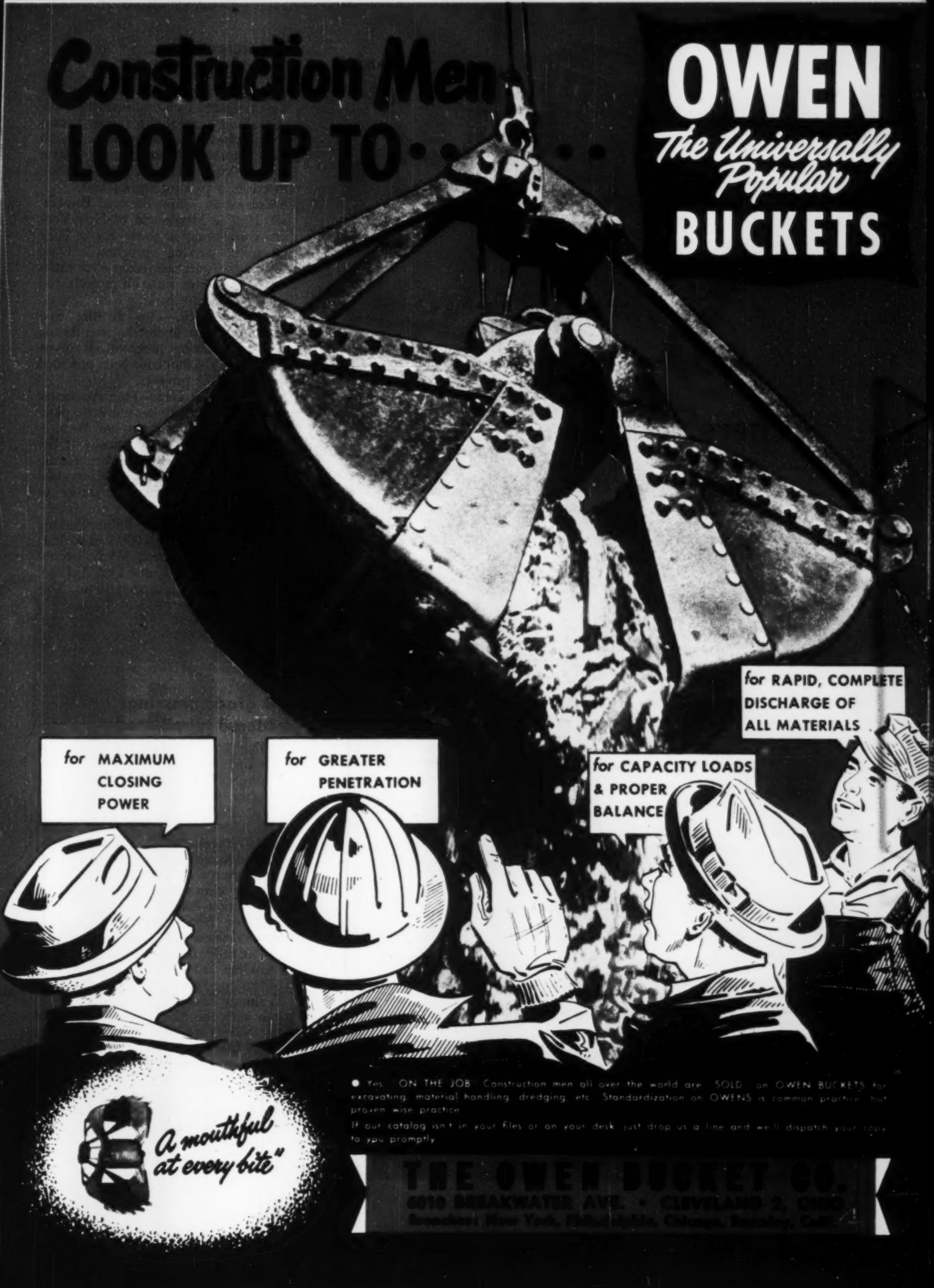
That congressional committees investigate and take the necessary measures to provide legislative relief to prevent a high mortality among private enterprises and businesses in the construction industry which are now suffering as a result of these conditions.

# "Aspirin" for parking headaches

Here are some remedies suggested for parking troubles in many widely scattered communities:

- **Cleveland, Ohio**—The City Planning Commission has gotten out an illustrated booklet on "Our Downtown Parking Headache and How We Can Cure It". The proposed cure—Establish a board or agency of five or seven men to be responsible for the entire downtown parking problem and be given the powers to solve it.
- **Atlanta, Ga.**—The local traffic commission has approved installation of parking meters, city council has concurred, but action must be taken by the state legislature.
- **Allentown, Pa.**—Shop and Park, Inc., has developed 12 parking lots with capital raised by sale of stock. Within 1000 ft of the central shopping district 1200 cars can be parked.
- **Toronto, Ont.**—The city and the Downtown Businessmen's Association plans a non-profit organization to provide 5000 off-street parking spaces. City-owned parking meters would help finance the project.
- **Dallas, Tex.**—The Dallas Railway & Terminal Co. is starting a shoppers' shuttle service. Most of the trip will be on Main Street and the fare will be five cents instead of 15 cents as on regular routes.
- **Memphis, Tenn.**—Parkrite System Inc has signed a 50-year lease for a corner lot at Monroe and Third, and will erect a 300-car parking garage.
- **Wilmington, Del.**—Use of four blocks in the business area as a parking space, to return a favorable investment to bond holders, is under consideration by the new Wilmington Parking Authority.
- **Washington, D. C.**—The parking committee of the commissioners' traffic advisory board has rejected the Capital Transit Co. proposal for a fringe program in the district.
- **Stamford, Conn.**—Police get names of parking violators from the state motor vehicle bureau and send dunning letter to the offenders.
- **Boston, Mass.**—Construction of off-street garages in Winthrop and Copley squares has been delayed indefinitely by the National Production Authority.
- **Knoxville, Tenn.**—The city has opened a 500-car parking lot back of the city hall.
- **Phoenix, Ariz.**—City council has declared that the business district parking problem must be solved by downtown property owners.
- **Buffalo, N. Y.**—The engagement of

*(Continued on page 54)*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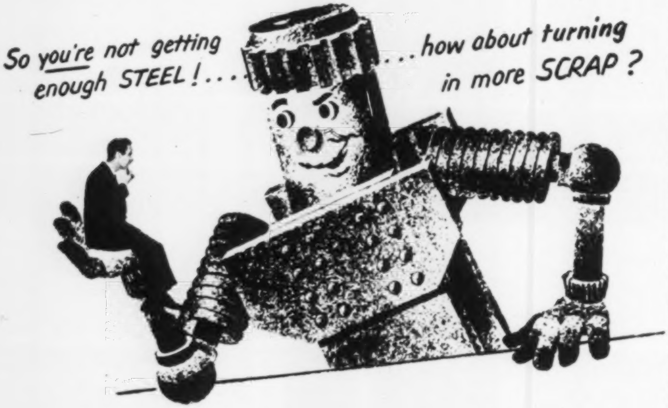
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Let's be realistic about the scrap shortage. The need for scrap is desperate. It threatens to hamper our whole National Defense effort—and it vitally concerns *you* because it boils down to this:

Unless 100,000 tons of industrial scrap roll into the steel mills every day, steel production will drop, and there'll be *less* steel for everyone—you included.

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So—if you want more steel—do your full share in getting your scrap back to the mills. Comb through your plant, again and again. Tap every source of dormant scrap. Dig out every retired machine that you can possibly spare and rush it to your scrap dealer. Rip out any old rails and switches that are rusting away on unused sidings—and scrap them. Scrap your antiquated dies, jigs and fixtures, your worn-out tanks and boilers that are gathering rust in some forgotten corner. Make sure that not a single pound of scrap is by-passed. Sell it—ship it. It means good money for you, more scrap for the Nation's scrap pile, and more steel for *everyone*.

• • •

Remember—the Nation's productive effort depends primarily on steel—and steel depends on SCRAP . . . *your* scrap. Turn it in—NOW.

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You'll find your local scrap dealers listed in the yellow pages of the phone directory.

This space would ordinarily be used to tell you about

OUR STEEL WAREHOUSE SERVICE

but, because steel cannot be produced without SCRAP, we are asking instead for your all-out help in getting more SCRAP to the mills.

UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSES COAST-TO-COAST

UNITED STATES STEEL

## Municipal . . .

a consultant engineer to make a study of the parking needs of the city was recommended by Commissioner Frederick W. Crane of the Public Works Department in a communication to the common council, but Mayor Joseph Mruk has asked the council to create a parking agency first.

• **Columbus, Ohio**—Parsons, Brinkerhoff, Hall & Macdonald of New York are completing a study for a large off-street parking program. Ohio Supreme Court has ruled that cities may issue bonds for such projects and retire them from parking fees.

• **Kankakee, Ill.**—This is the first Illinois city to undertake a full-scale off-street parking program. Revenue bonds of $515,000 have been provided to finance the project.

• **Youngstown, Ohio**—Pace Associates report that the city has adequate parking facilities downtown but there is need to improve the efficiency of the parking supply. The city is negotiating with the Erie Railroad on a proposed $5,000,000 over-the-tracks garage to accommodate 2400 cars.

• **Pittsburgh, Pa.**—The Public Parking Authority has sold $6,000,000 parking revenue bonds bearing 3½% interest dated Oct. 1, 1951, due Oct. 1, 1981, with prior optional redemption. This is believed to be the largest issue sold up to the present for parking purposes. Approval has been obtained from the National Production Authority to construct two parking garages.

## 50 grade crossings ordered eliminated

The N. Y. State Public Service Commission has issued an order directing the relocation of railroads in Niagara Falls, N. Y., to eliminate some 50 crossings at grade.

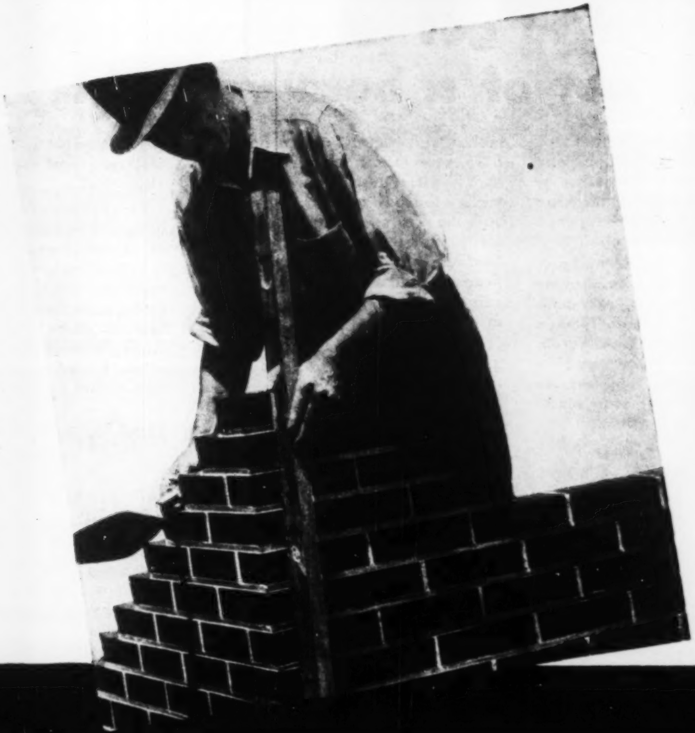
In effect, this gives approval of this city's Scheme "Y," prepared during the last five years by A. Burton Cohen, the city's consulting engineer on grade crossing elimination, who worked in cooperation with the Niagara Falls Planning Board. Estimated cost of the relocation is $18,000,000.

The order calls for relocating major trunkline railroad tracks around the eastern outskirts of the city, just off Walmore Road, across open country to join with the Niagara Falls branch of the New York Central system in the north fringe of the city.

When and if carried out, the order will eliminate almost entirely New York Central and Erie R.R. tracks west of 102nd St., which now knife directly through the LaSalle section and the South End business district.

None of the railroads made critical

(*Continued on page 57*)



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LOUISVILLE CEMENT CO.
BRIXMENT

ASIDE from the brick, the most expensive item in masonry work is the *bricklayer's time.* Therefore the most economical mortar you can use is the one that enables the bricklayer to lay the most brick per day. Brixment mortar saves bricklayers' time because it is more plastic and stays plastic longer:

(1) Requires less chopping and retempering on the board.
(2) Works faster and easier.
(3) Sticks to the brick — saves unnecessary stooping to the board for more mortar.
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(5) Doesn't gum up the trowel — makes a neater job that costs less to clean down.

**LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY**

# How to get more roadwork out of a heavyweight

ONE way in which the Buffalo-Springfield Roller Company builds more work output into its heavy-duty rollers is by mounting the king pin assembly on Timken* tapered roller bearings.

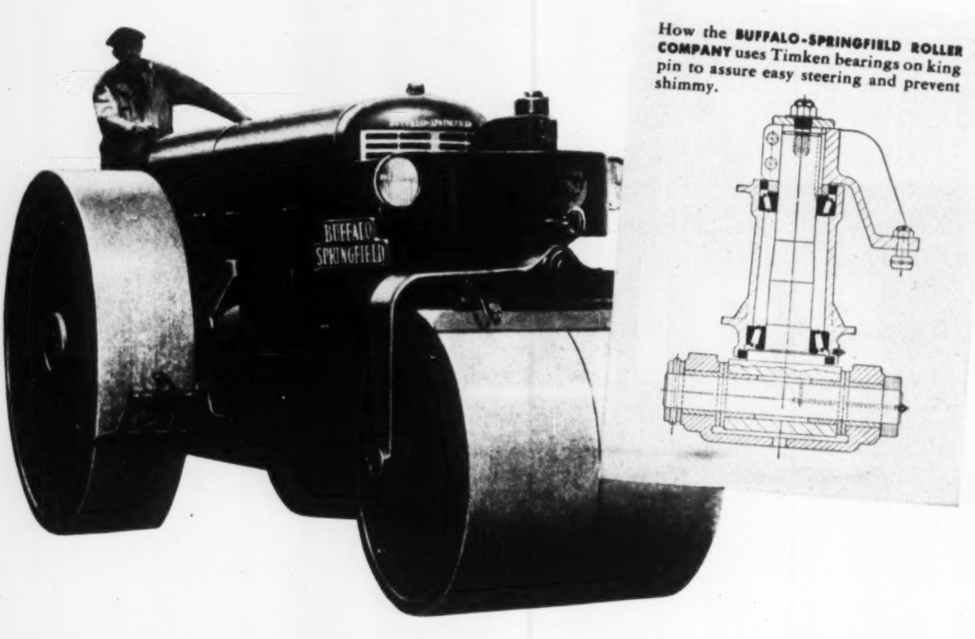
This makes steering easier and prevents any vertical motion or shimmy in the guide roll. Result—easy handling even on rough terrain. Timken bearings are also used in the differential as well as on the intermediate and bull pinion shafts. This assures a smooth flow of power—cuts maintenance and lubrication time.

Because of line contact between rollers and races, Timken bearings have exceptional load-carrying capacity. The true rolling motion and smooth surface finish of rollers and races enable them to operate freely, frictionlessly. Since they take radial and thrust loads in any combination, Timken bearings hold shafts in rigid, positive alignment, insuring proper gear meshing at all times.

Closures are more effective because Timken bearings keep housing and shaft concentric. Lubricant stays in, dirt stays out. Timken bearings will normally last the life of the machine in which they are used because they're engineered for the job, precision manufactured, and made of Timken fine alloy steel.

First choice of the construction industry, Timken bearings give you more advantages than any other bearing. Be certain they are in the equipment you buy, or the equipment you build. Look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".

*This symbol on a product means its bearings are the best.*


How the **BUFFALO-SPRINGFIELD ROLLER COMPANY** uses Timken bearings on king pin to assure easy steering and prevent shimmy.

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The first Timken tapered roller bearing was produced in 1898. Since then the one-piece multiple perforated cage, wide area contact between roll ends and ribs, and every other important tapered roller bearing improvement have been introduced by The Timken Roller Bearing Company.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis steels.

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TRADE-MARK REG. U.S. PAT. OFF.
*TAPERED ROLLER BEARINGS*

NOT JUST A BALL ○ NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

## Municipal . . .

objections to the proposed plans, according to the commission. It is estimated that drawing of the detailed relocation plans will take 18 months to two years, after which construction work would start, barring unforeseen obstacles.

The PSC order brings a Niagara Falls dream of nearly half a century to reality and culminates more than 20 years of active efforts on the part of the city to rid itself of dangerous grade-crossings and growth-throttling rail lines in the heart of the city.

### Memphis slum clearance to give industrial sites

The location for the first slum clearance and Urban Redevelopment project in Memphis, Tenn., for industrial purposes has been announced. Public hearings on the plan will be held early in the new year.

The new venture in slum clearance is a proposed $1,500,000 project intended to provide greatly-needed close in space for new warehouses, truck terminals and light industrial manufacturing plants. The site is a 54-acre tract in the heart of a substandard area just north of E. H. Crump Boulevard and adjacent to Railroad Avenue. Once the land is cleared, the Memphis Housing Authority hopes that it can be sold at once.

The law provides for the federal government to assume two-thirds of the slum clearance cost if the city will assume one-third.

### Wood in place of steel for new Dallas school

School architects in Dallas, Tex., now have on the drawing boards a new school structure in which wood will be substituted for steel in much of the building's framework.

Mark Lemmon, consulting architect for the Dallas Independent School District, figures the new design will save about 200 tons of scarce steel in a regular 1-story building for 800 to 1,000 pupils.

The first building to be constructed under the steel-economy plan will be the Casa View School at Itasca and Monterrey Streets. About 85 percent of the steel saving will be in the roof. Galvanized iron is being used instead of copper in roof gutters, down spouts and flashings to join the building walls and ceilings.

### Government OK's FHA loan for Baltimore housing

Vital FHA insurance on two Baltimore slum redevelopment projects was lost and won again last week. The Federal Housing Administration first announced it would cancel its guarantees on the loans to private contractors, since they had not taken advantage of the guarantees, and that it wished to wind-up that type of financing (Sec. 608 of the Housing Act). The program calls for the city to buy and clear the sites for the redevelopers who then take over with 40-year leases.

One site, 17 acres in size, is in North Baltimore near a main north-south artery. On it will be built a shopping center and 291 garden-type apartments. The other site, covering 30 acres, is near Johns Hopkins Hospital. Development there calls for 650 apartments and dormitories for 250 students.

An alternate financing plan suggested by the FHA would have resulted in $80 rents and ruined the whole low-rent scheme, redevelopers said. At first the FHA refused to extend guarantees. The city asked President Truman to intervene, then the Housing and Home Finance Agency assured the city that the program could proceed.

• **State office building**—Governor McKeldin of Maryland last week advocated construction of a state office building and World War II memorial auditorium in downtown Baltimore. The buildings, on adjoining sites, would replace blighted blocks. The city administration already has selected three possible sites. One is in a run-down market area on the inner harbor at Light Street. A bulkhead project to improve Light Street waterfront is already more than half completed. Other sites suggested are in slum areas on the fringe of the business district. Many state offices are scattered throughout Baltimore. The city is recommending centralization into two or three six-to-eight story buildings on one site.

• **Honolulu slum clearance**—Three slum areas in Honolulu will be cleaned up under an urban redevelopment law passed in 1949 and backed up this year with condemnation powers. Edward J. Burns, new manager of the Honolulu redevelopment agency, says the market value of land to be bought, cleared, re-subdivided and re-sold for private use is around $25,000,000. About 162 acres are involved.

• **Boston market**—The Massachusetts Market Authority has approved plans for a $25,500,000 wholesale and retail market between Dover and Southampton Streets, Boston. To be financed by revenue bonds, construction costs are estimated at $18,070,000.

STOP
THAT LEAK
FOR GOOD

9 SIKA COMPOUNDS TO END REPAIR PROBLEMS ON CONCRETE AND MASONRY

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(SIKA No. 2, SIKA No. 4A) Leaks are easily sealed on the exposed side with quick-setting SIKA mortar. It is not necessary to relieve pressure. SIKA No. 2 is used against heavy pressure or bleeders, SIKA No. 4A against seepage or moderate pressure.

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(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

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(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

● FOR NON-LEAKING SURFACES
(SIKACRETE, SIKA-KOTE) Water-resistant SIKACRETE mortar is used wherever cement-coat work is indicated. Economical, easy to apply SIKA-KOTE prevents penetration of ground moisture.

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(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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# MEN AND JOBS

CAROLINAS CONTRACTORS—Officers and directors of the Carolinas Branch of the A.G.C. are, seated, left to right, R. Cowper, vice-president; C. P. Ballenger, Jr., president; Roy L. Goode, treasurer. Standing, left to right, Robert Patten, managing director; J. A. Timberlake, director; H. S. Crain, retiring president; G. E. Moore, director; W. W. King, Jr., retiring director; W. L. G. Mackenzie, director; and Beaumert Whitton, director.

## Wanamaker quits turnpike for work with U. S. Steel

W. W. Wanamaker has resigned as executive director of the New Jersey Turnpike Authority to become chief engineer of the Orinoco Mining Co., a subsidiary of the U. S. Steel Co., charged with responsibility of developing iron-ore deposits in Venezuela. He will be located in the New York offices of the company.

General Wanamaker was named executive director of the New Jersey turnpike work in December, 1949, following his retirement from active military service. At the time he was district engineer at New York. During World War II he was chief engineer of a secret mission in the South Pacific under Admiral Byrd and later served in the Southwest Pacific Theatre.

## New appointments

State, city and county

**Everett R. Burkhardt** has been appointed chief engineer of the Holyoke, Mass., Water Power Co.

**M. G. Poole** has been appointed city planning engineer at Tacoma, Wash., on a temporary basis to succeed Roy Green, who resigned to return to the state highway department.

**Paul Buxton, C. B. Shuman, Dr. Edward Piszczek, Cecil Cone** and **Mrs. Laura H. Lunde** are members of the advisory council of the Illinois Water Pollution Control.

**Alex. C. Sonnichsen,** formerly assistant city engineer at Walla Walla, Wash., has been appointed city engineer, building inspector and assistant sewer superintendent at Auburn, Wash.

Five Washington state engineers have been appointed to an advisory board by the state's Public Lands Office, to serve in the field of maps, surveys and boundaries. They are **Hiram Chittenden** of the University of Washington, Seattle; **H. V. Kramer,** Seattle consulting engineer; **C. V. Payne,** Spokane, **Benjamin J. Hayes,** Hoquiam city engineer; and **A. M. Sobieralski,** retired Coast & Geodetic Survey officer.

## Heads Merritt-Chapman

Ralph E. DeSimone has been elected president of Merritt-Chapman & Scott. A member of the organization since 1916, Mr. DeSimone had served for the last year as executive vice-president and general manager of the company, a post in which he was in over-all charge of the corporation's operations in the fields of industrial, building, marine and heavy construction; marine salvage and derrick heavy hoisting. He is a civil engineer graduate, New York University.

Government agencies

**Mark D. Hollis,** chief engineer officer of the U.S. Public Health Service, has been promoted to a grade corresponding to major general. He has been an associate bureau chief of the Bureau of State Services and an assistant surgeon general in the Public Health Service.

Industrial and commercial

**J. B. Allinson,** Dallas, Tex., who was assistant planning manager in building and operating the Oak Ridge, Tenn., atomic energy project, has been made head of the Merritt-Chapman & Scott Corporation's new office at Dallas.

**Charles C. Zollman** has joined Vacuum Concrete Inc., as chief engineer. An expert on prestressed concrete he was formerly associated with the Preload Corp., New York City.

## Retirements

**Wm. Montgomery,** engineer with the Bureau of Public Roads at Roanoke, Va., has retired after 20 years of U. S. government service.

**Martin W. Clement,** who started in 1901 as a $45-a-month rodman, and became the chairman of the board of the Pennsylvania Railroad will retire Dec. 31. He graduated from Trinity College with a Bachelor of Science degree.

## Honors

**John C. Maguire,** contractor in charge of construction of Canyon Ferry Dam was honored at a civic award dinner at Helena, Mont., recently.

Seven civil engineers and railroad presidents were among the 100 persons honored with "Centennial Awards for the Northwest Territory" by Northwestern University, Evanston, Ill., at its recent centennial convocation. The awards were given to 100 leaders in arts, science, industry and government from Illinois, Indiana, Michigan, Ohio, Wisconsin and Minnesota in recognition of "the impress they had made upon their generation during a lifetime of distinguished service as residents of one of the states which comprised the original Northwest Territory."

The civil engineers and railroad officials honored are: **Avery Brundage,**

(*Continued on page* 60)

# Delays don't go

## on Defense construction

Vital construction today must move rapidly. Pipelines have to go in quickly—must be dependable. Dresser Couplings make your fastest, surest pipeline installation—whether it's a temporary line for construction purposes or a permanent line that must serve for years and years.

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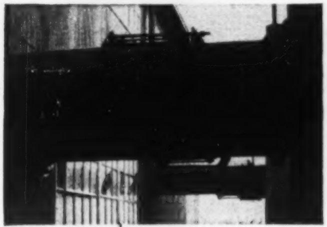
This Dresser-Coupled line supplies gas to a Detroit steel mill . . . dramatically illustrates the rugged service expected and received with Dresser Couplings. Heavy vibration from railroad tracks on both sides and over line, is harmlessly absorbed by Dresser gaskets and the line stays permanently "flexible-tight."



Ability to withstand vibration is important here. Dresser Couplings stay tight on exhaust lines of 2400-h.p. engines at a pumping station in the southwest.

In close quarters, dependable connections are easily made with Dresser Couplings. Many engineers say they are "the only practical pipe joint" in crowded locations.

Dresser Couplings are extremely useful for temporary construction lines. Lines may be disassembled and moved with virtually 100% salvage—especially important in times of shortages.

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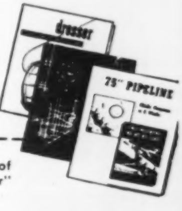
Interesting engineering data on varied types of lines installed with Dresser Couplings. This is file material.



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When this photo was made the tank was filled with water for leakage test. After the test showed the tank to be bottle-tight, two inch mesh reinforced "GUNITE" was placed over the outside to permanently protect the pre-stressed hoop rods. The tank was subsequently covered with 12" of fill over the dome.

At the present time, our organization is constructing several Pre-Stressed Tanks, without dome roofs, for use as digester tanks in sewage disposal works.

*Many examples of Cement Gun Company's repair, remodeling and new construction work with "GUNITE" are pictured and described in Bulletin A2400. A request on your letterhead will bring your free copy by return mail.*

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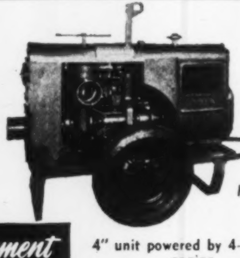

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## Men and Jobs . . .

civil engineer and president of the United States Olympic Association; **Ralph Budd,** chairman of the Chicago Transit Authority and formerly president of the Chicago, Burlington and Quincy Railroad; **John D. Farrington,** president of the Chicago, Rock Island and Pacific Railroad; **Fred G. Gurley,** president of the Atchison, Topeka and Santa Fe Railroad; **Henry T. Heald,** civil engineer and president of Illinois Institute of Technology who becomes chancellor of New York University next month; **Arthur E. Morgan,** civil engineer, former president of Antioch College and now president of Dayton-Morgan Engineering Co., Yellow Springs, Ohio; and **Andrey A. Potter,** dean of engineering at Purdue University.

**Chester Lichtenberg,** Fort Wayne, Ind., recently was named "Engineer of the Year" for the state of Indiana by the Indiana Society of Professional Engineers, at its three-day meeting in Lafayette. The honor is given annually for long-term achievements and contributions to the field of engineering. Colonel Lichtenberg was graduated from Columbia University in 1906 and was employed by the General Electric Co. for 42 years.

PHILADELPHIA'S MANAGING DIRECTOR—Col. Robert K. Sawyer, civil engineer and former instructor in engineering at the universities of Alabama and Wyoming, has been appointed Philadelphia's managing director. He will direct 20,000 municipal employees. He is a 1935 engineering graduate of the University of Michigan. He entered the Army in 1941 and became lieutenant-colonel. He was field supervisor and planner on several Army construction projects. He went to Philadelphia five years ago as a research engineer and water works consultant on the analysis and study of many of the city's public works and of the post-war planning program. In 1949, he was appointed executive director of the Greater Philadelphia Movement.

AGC LEADERS MEET—Among those attending the recent executive committee meeting of the Associated General Contractors of America were: (left to right) H. E. Foreman, managing director of AGC; Glen W. Maxon of the Maxon Construction Co. and president of AGC; Arthur S. Horner of the A. S. Horner Construction Co., and nominated for the Board's president in 1952, and C. P. Street of the McDevitt and Street Co.

# AGC urges renegotiation exemption for civil works contracts

At its Washington meeting Dec. 6-7, the executive committee of the Associated General Contractors of America reviewed a half dozen current problems affecting construction and approved actions being taken.

On contract renegotiation, the AGC had asked to appear before the Renegotiation Board to make several suggestions, particularly these two:

That renegotiation be limited to military construction contracts and that civil works contracts be exempt; and that renegotiation be on the basis of a contractor's overall operations on government contracts subject to such action. The second recommendation is highly important to contractors who take work on several jobs simultaneously, either as individuals or participants in joint ventures.

On the recent Supreme Court decision in the Wunderlich case, affirming the power of federal contracting officers and department heads to settle contractors claims (ENR Dec. 6, p. 25), the committee thought that AGC action should wait until a later date. First opportunity, the group agreed, should be given the Comptroller General or other government officials to ask Congress for legislation limiting the power of department heads to decide questions of fact under federal contracts.

**• Ceiling price difficulties**—Regarding contractor difficulties that may be expected to arise under the ceiling price regulation, the meeting agreed that questions should be brought up through the local chapters to AGC national headquarters for interpretation and decision by the Office of Price Stabilization in Washington. This procedure would avoid the possibility of conflicting decisions that might be obtained in various OPS field offices.

Surprisingly, the meeting had no complaints to consider on the operation of the Controlled Materials Plan. So far as the committee members could say, CMP was causing no more than the expected number of minor headaches.

Committee members expressed strong dissatisfaction with the Defense Department rental schedule recently approved by the Munitions Board for contractor-owned equipment on fee contracts. There is a danger that this schedule might be applied late in contract renegotiation.

AGC, the committee learned, now has 6,100 contractor members, with chapters in 47 states and Alaska.

## Flood control works save $300 million a year

Flood control works under jurisdiction of the U. S. Engineers prevent an average annual flood loss of more than $300,000,000, Brig. Gen. C. H.

*(Continued on page 62)*

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## Meetings . . .

Chorpening, assistant chief of Army Engineers for civil works, told some 500 delegates to the recent annual convention of the Soil Conservation Society of America at Memphis, Tenn. General Chorpening said the federal flood control and navigation project for the Mississippi Valley area is now more than 60 percent complete. It provides protection to 753 cities and towns with an estimated population of 1,900,000 in the protected areas. When completed, the authorized program will protect 1800 communities, with a population of more than 6,000,000.

The general cited the following uses of waterways in wartime:

1. By movement of bulk commodities, waterways help relieve overburdening of railroads.
2. They play a vital role in moving oil over protected inland routes.
3. Access by inland waterway permits use of interior shipyards for building landing craft and other small ships needed in great numbers.
4. Inland waterways permit a more widespread geographical distribution of manufacturing and industrial processes.

## Reinforced concrete competes with steel

Sloppy handling may put reinforced concrete in a poor competitive position when steel is in better supply, John P. Riley, construction coordinator of the New York City Board of Education, and John M. Kyle, Jr., chief engineer, Port of New York Authority, warned the Concrete Industry Board last week.

The occasion was the first official meeting of the CIB. The membership consists of engineers, architects, testing-laboratory personnel, contractors, ready-mix plant operators and others in the New York metropolitan area concerned with concrete construction.

If designers cannot rely on the quality of concrete, Mr. Kyle told the CIB, they will either avoid using it or apply high factors of safety.

## Water and wastes discussed at L.S.U.

Representatives of industry, agriculture and city government took a look at Louisiana's water supplies and waste disposal problems in a symposium held at Louisiana State University last month. Delegates voted to make the symposium an annual event, under L. S. U. Engineering Experiment Station supervision.

W. A. Moggio, resident engineer for the National Council for Stream Improvement, said that 80 to 90 percent removal of pollution in a 6-hour period has been accomplished through an accelerated treatment process for Kraft mill waste.

A project is now under way for color removal in paper mill waste, but no ill effects on cattle from drinking "black water" from kraft mills have yet been found in L. S. U. study.

W. H. Wisely, executive secretary of the Federation of Sewage and Industrial Waste Associations, Champagne, Ill., said that trade associations can do the job of industrial waste control if they will tackle it. He cited the dairy industry as making the best contribution so far. Others doing a good waste control job are the petroleum, pulp and paper, vegetable canning and non-ferrous metals industries. He added, however, that of 151 trade associations that could work on the problem, only 22 are now making the effort.

## CALENDAR

**Kansas Contractors Association,** annual meeting, Hotel President, Kansas City, Mo., Jan. 10-11.

**N. Y. Section, American Water Works Assn.,** winter luncheon meeting. Hotel Park Sheraton, N. Y., Jan. 15.

**Highway Research Board,** annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.

**N. Y. Sewage and Industrial Wastes Association,** annual meeting, Hotel Statler, N. Y. City, Jan. 17-18.

**Canadian Construction Association,** annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.

**National Association of Home Builders,** annual convention and exposition, Conrad Hilton and Congress Hotel, Chicago, Jan. 20-24.

**American Road Builders Association,** Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.

**Wisconsin Highway Commissioners and Highway Committee Members Association,** winter conference, Schroeder Hotel, Milwaukee, Jan. 22-24.

**Associated Equipment Distributors,** Conrad Hilton Hotel, Chicago, Jan. 27-31.

**American Society for Metals,** William Penn Hotel, Pittsburgh, Pa., Jan. 31-Feb. 1.

**California Conference on Street and Highway Problems,** University of California, Los Angeles, Feb. 6-8.

**National Council of Private Motor Truck Owners,** convention, Hotel Statler, Washington, D. C., Feb. 7-8.

**National Sand and Gravel Association,** convention and exposition, Conrad Hilton Hotel, Chicago, Ill., week of Feb. 11.

**Illinois annual Conference on Highway Engineering,** Urbana, Feb. 19-21.

**N. Y. State County Highway Superintendents Association,** DeWitt Clinton Hotel, Albany, Feb. 20-22.

**Associated General Contractors of America,** Statler Hotel, Detroit, Feb. 25-28.

**Materials Handling Conference,** Purdue University, Lafayette, Ind., Feb. 25-26.

# OBITUARY

**Harry L. Davis**, 62, assistant engineer for Nassau County and the Towns of Huntington and Babylon in Suffolk County, for the New York State Department of Public Works, died at Port Washington, Nov. 11. He was graduated from Rensselaer Polytechnic Institute in 1909, and was a veteran of World War I, in the Navy. Before entering state employment in 1913, he was employed by the New York City Board of Transportation and Department of Water Supply. He joined the Rochester Division of the State Department of Public Works in June, 1913, transferring to the Poughkeepsie Division in June, 1919, where he was until July, 1926, when he was assigned to the Babylon District as county assistant, remaining there until his death.

**Warren B. Hopkins**, 65, formerly vice-president and general manager of Stone & Webster Co., Boston, died Nov. 27, in Salem, Mass. His home was in Marblehead. He was a graduate of Massachusetts Institute of Technology.

**S. G. Both**, regional engineer for the Ontario Department of Highways, died in Huntsville, Ont., Nov. 27.

**Eugene Kifer**, 66, long active in Toledo, Ohio, and federal housing programs, died Nov. 26. He studied civil engineering at Gettysburg College. He was formerly vice-president of the Kay Homes Construction Co., Toledo, and former housing analyst for the National Housing Agency in Chicago, his work there covering 13 states.

**Edward Elford**, 84, president of the E. Elford & Son Contractors, Columbus, Ohio, died Nov. 28 in St. Petersburg, Fla. His firm built several Ohio State University structures, the Harding Memorial in Marion; Perkins Observatory, Austin Hall, and Selby Stadium at Ohio Wesleyan University, Delaware.

**Fred Fauth**, 91, former chairman of the Board of Public Works and former mayor of Aurora, Ill., died Nov. 26.

**Gilbert C. Olson**, 74, former office engineer of the New York State Department of Public Works, died Nov. 27 in Jamestown, N. Y. He had served the state more than 40 years.

**Hugh E. Young**, 68, who as chief engineer of the Chicago Plan Commission, designed many of Chicago's principal improvements, died Nov. 28 in Ashton, Ill. Retired in 1950, he had served the commission for 25 years to 1945, when he went with Ralph H. Burke, Chicago airport consultant, in the construction of O'Hare International Airport. Before joining the commission he was assistant chief engineer for Chicago. He was designer or consultant on the superhighway system, the Wacker Drive, the Lake Front Airport and the Michigan Avenue Outer Drive and other bridges. He also served as consultant on the design of several large bridges in Wayne County, Mich.

**H. G. Haynes**, 56, professor of civil engineering at The Citadel, Charleston, S. C., for 23 years, died Nov. 25. He earned his civil engineering degree at Carnegie Institute of Technology, Pittsburgh, Pa.

**John H. Henrikson**, 68, building contractor of Seattle, Wash., died Nov. 25. First as a partner in Henrikson-Alstrom and later as head of the Henrikson Construction Co., he built some of the city's largest structures during 40 years as a contractor.

**John Yakimo**, 60, owner of the Rip Rap Contracting Co., and a stone crusher contractor and stone and base material supplier on most of the largest dam and highway construction projects in Texas and the Southwest, died at Dallas, Tex., Nov. 22. Some of the projects on which he was contractor for stone crushing and stone and base material supplier were the majority of Texas highways, and the Wister, Morganza, Red Bluff, San Angelo, Blakley Mount, Benbrook, Tenkiller Ferry, Falls River, and Lavon dams.

**Harry W. Hall**, 62, chief engineer, Illinois State Waterways Division, died Dec. 7. His last Army assignment was with the U. S. Engineers, Rock Island, Ill.

**Col. Charles Greenough Mortimer**, 76, USA (ret.) who supervised the restoration of Lee Mansion and the beautification of Arlington National Cemetery, died Dec. 4 in Washington, D. C.

**C. W. B. Richardson**, 65, engineer with Ontario Hydro-Electric Power Commission, died Dec. 5. He was graduated from the University of Toronto in civil engineering.

**John Olsen**, 81, retired Massachusetts Department of Public Works senior engineer, died Dec. 2, in Arlington Heights. He planned Woodlawn

(*Continued on page 64*)

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## Obituary . . .

Cemetery in Baltimore, Md., and helped supervise the building of the Yale University Bowl.

**Charles G. Thornburgh,** 62, a vice-president of the Rust Engineering Company, died near Carnegie, Pa., Dec. 5. He received a civil engineering degree from Lehigh University in 1909. He had been with the Rust Company for 26 years.

**J. Theodore Whitney,** 63, of Wakefield, Mass., structural engineer, died Nov. 28. He was graduated at Massachusetts Institute of Technology in 1910.

**James H. Brown,** 72, of Elwood, Md., a retired civil engineer, was fatally injured Nov. 27 in an auto accident near Mardela, Md.

**Frederic A. Knight,** 79, retired civil engineer for the Bureau of Public Roads, died Nov. 29 in Chicago. He had been with the bureau for 20 years.

**Lester Du Bois,** 54, president of Henry Du Bois Sons Co., dredging contractors, died in New York City Dec. 3. He was a 1918 engineering graduate of Cornell, served in World War I and then joined the family firm which has been in harbor maintenance work for 100 years.

**Robert D. Baker,** 80, Michigan road construction contractor, who laid one of the earliest concrete pavements, died at Milwaukee, Wis., Dec. 4. He He was the inventor of several types of automatic road building machines and had been in the building and excavation field for 60 years.

**Edward E. Gillen,** 72, founder and president of the Edward E. Gillen Co., marine engineer and contractors, died at Milwaukee, Wis., Dec. 4. He originated self-unloader boats for laying the stone cores of breakwaters, and was a pioneer in the construction of rubble mound breakwaters on Lake Michigan.

**Harry W. Hill,** 62, principal engineer of the waterways division of the Illinois highway department, died in Springfield, Ill., Dec. 1. He was a 1913 graduate of Cornell. He was in the U. S. Army for many years.

**Wm. E. Metzger,** 61, a former engineer, died in Memphis, Tenn., Dec. 2. A civil engineer graduate of Vanderbilt University, he worked for several years in Central America.

# LABOR

## NLRB stresses ban on closed shop

The rule that a closed shop is illegal and must be stricken from a union contract—even when there is a company-union understanding not to enforce it—is stressed again by the National Labor Relations Board in a decision involving electrical contractors.

Acting on complaints of electricians who felt they were discharged for being non-union, NLRB directed the Port Chester, N. Y., Electrical Construction Corp. and the International Brotherhood of Electrical Workers Local 501 to: Kill any provisions in their contract that refers to union membership as a condition of employment, and "in no other manner" interfere with the right to join or not to join a union.

The Westchester-Fairfield Chapter, National Electrical Contractors' Association, is also mentioned in the NLRB findings.

• **Details**—The association negotiated the closed shop clause for the Port Chester firm and other association members in June, 1947—just before the passage of the Taft-Hartley Act with its ban on closed shops.

In its original form, the clause required contractors to hire only IBEW members for electrical work and to obtain them from the union office. When the local can't supply men in 48 hours, it would issue "temporary working cards" to nonunion electricians whom the contractors might want to hire.

• **Not voided**—A year later, when contractors and unions were required to get rid of any pre-Taft-Hartley closed shop conditions, the contract was amended to provide that any part of it found to be unlawful by a court, would be considered null and void.

The following year, the closed shop clause was amended to provide that the contractors would get their members through the local's business manager, and that when none was available, the business manager could "grant permission" to nonunion electricians to work until a union man could be supplied.

• **NLRB findings**—NLRB found that the complaining electricians were not discharged for lack of a union card, but were really laid off because of lack of work. Because the closed shop was not actually enforced, NLRB determined that the Port Chester contractor and Local 501 did not, technically, violate anti-closed shop sections.

Instead, NLRB said they violated—and thus made the closed shop clause illegal anyhow—that part of Taft-Hartley which says employers and unions must not interfere with the rights of employees to join or refuse to join a union (except under approved union shop provisions.)

### Reclamation bureau signs second labor pact

Signing its second such compact within two years, the Bureau of Reclamation last week had agreed to collective bargaining with its own employees throughout Region 3.

A similar agreement was signed a year ago with employees in the Columbia River district. The Bonneville Power Administration—also an Interior Department agency—also has one with its skilled employees in the Pacific Northwest.

Signed by Richard D. Searles, acting Secretary of the Interior, and by officials of the Colorado Power Trades Council, the agreement covers 500 hourly employees of the bureau at Davis Dam and Phoenix, Ariz., Parker Dam, Calif., and various substations and electrical generating and transmission facilities in Nevada, Arizona and California. The agreement gives employees the same channels (within statutory limits) that are open to privately employed workers to negotiate wages, working conditions and other employment details.

The council is composed of locals of 12 unions, including: Painters, decorators and paperhangers; IBEW; Hod Carriers; Operating engineers; carpenters; iron workers and teamsters.

### R. I. utility job slows

A jurisdictional dispute at a $20 million utility expansion construction job at Providence, R. I., partially halted work on the project in a strike peculiar in Rhode Island labor history.

The dispute was between the operating engineers and steamfitters—operating men objecting when steamfitters were assigned by a contractor to assemble an air compressor on the site. Operating engineers suddenly reported "sick" and picket lines were established.

Unusual in state labor history, however, is that fact that iron workers, laborers, teamsters refused to cross the picket lines—but carpenters, and steamfitters crossed the lines. The lines were withdrawn to permit electric utility workers and trucks to enter.

Pickets carried signs saying that the utility (Narragansett Electric Co.) is "fair to their help and us," and reporting that their action was taken against the United Engineers, Philadelphia, contractor.

## Fight award of top pay to bricklayers

Under the already partially implemented threat of a strike or slowdown, a group of contractors in New York's Rockland County (Nyack) this week had filed strong protests with federal agencies over a wage determination which gives their comparatively rural area a wage rate for bricklayers 25 cents higher than the base rate for New York City.

Contractors believed there were errors in the action by the Construction Industry Stabilization Commission in approving the high rate, and hoped to get it rescinded. If it is, it would be the first such action by CISC.

• **Effect?**—What worried the contractors was the possible effect of such high wages in a rural area on the somewhat precariously stabilized situation in New York City and elsewhere in the state.

Center of the controversy is an area rate determination, dated Nov. 5 but not generally made public until recently, approving a rate of $3.50 an hour for Rockland County bricklayers. This compares with $3.25 an hour base rate in New York City, currently the highest in the state. (New York bricklayers, however, get an additional 20 cents an hour paid into a pension fund, and a further small percentage paid toward a welfare fund.)

• **Legal question**—The somewhat involved legal situation on which the contractors based their protest boils down to this:

On January 30, 1950, bricklayers' rates in Rockland County were $3.00 an hour. This rate became $3.25 on July 1, 1950. Acting under rulings of the Wage Stabilization Board, the Contractors and Suppliers Association of Rockland County—negotiating

(*Continued on page 66*)

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## Labor . . .

with union leaders—finally agreed, in a contract effective July 1, 1951, to grant a further 5 cents to total a raise of 30 cents an hour under WSB's 10% "catchup" formula then in effect.

In the interim, however (ENR May 31, p. 57) WSB had set up the CISC to pay special attention to the construction industry, and CISC set a new cut-off date as the point from which the "catchup" should be figured. This date was "the rate prevailing as of June 24, 1950, or July 1, 1950, providing the July 1 rate was established by an agreement executed before June 24."

Union leaders, however—taking the $3.25 rate of July 1, 1950 as their base—and armed with a letter from an official of the Rockland County group which said the group would "go along" with further raises (if approved by CISC), petitioned for a further 10% raise. CISC approved the new rate—apparently on the assumption that the letter constituted agreement with the proposal for further raises.

Contractors now contend that CISC may have been in error in taking the July 1, 1950 agreement as the proper base, and that in fact (despite the letter) the group formally had not joined in any application with the union for higher rates.

Meanwhile, the union advised contractors it wants the new rates paid as of last week, and implied they would pull their men off several million dollars' worth of work in the area if the rate isn't paid.

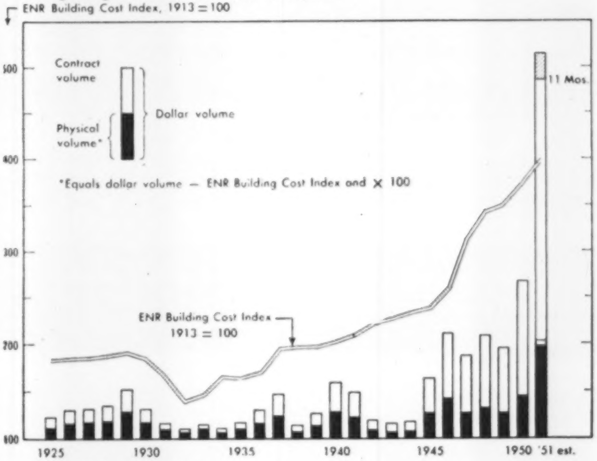
## Labor briefs . . .

- **Detroit wage talks**—Negotiations between the Carpenters District Council and the Builders' Association of Metropolitan Detroit have been resumed after a recess. Affecting some 12,000 carpenters in five counties, the talks center on payment of a 15-cent hourly increase, already offered by employers.

- **Paducah work starts again**—After a one-day strike (the 25th at the AEC work) building tradesmen were back at work at the Paducah AEC installation and at the Joppa, Ill., steam plant of Electric Energy, Inc. Fight started over time of starting work on the night shift, was not settled, but the men returned to work pending arbitration.

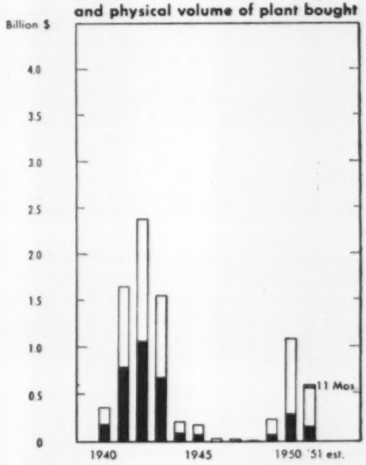
- **Akron workers up**—Pay raises averaging about 12 cents an hour have been approved by CISC for about 1,500 construction workers in the Akron, Ohio area.

**Private industry is spending 7 times more dollars in 1951 than in 1940 and getting 3.5 times as much new plant.**



Based on ENR contract awards

**Federal industrial building in '50-'51 is below '41-'42 rate both in $ spent and physical volume of plant bought**



ENR Business News

# Industrial building sets all-time record

Both in dollars spent and in physical volume, industrial construction in 1951 will set an all-time record, the Business News Department of ENGINEERING NEWS-RECORD reported this week.

Dollars spent for industrial building in 1951 (estimated at $4.8 billion) will be almost twice the amount spent in 1942 ($2.6 billion). Figures show 1942 was the peak year for industrial building in World War II.

Even taking into account the 80% rise in building construction costs since 1942, the 1951 volume is still 2% above the previous record in 1942 for physical volume.

• **Shooting up fast**—In the short space of one year, there has been a tremendous expansion. In 1951, dollarwise, industrial building amounted to 70% more than the total for 1950 ($2.8 billion). In physical terms, the increase was 60%.

To get some idea of the size of the current industrial expansion it is necessary to compare the current rate of dollar expenditures with earlier high years.

In 1951, seven times as much money is being spent for private industrial building as in 1940. The current rate is four times as high as 1946 and 2.5 times as high as 1950. In physical terms, 1951 is 3.5 times as great as 1940, 2.5 times 1946 and two times the size of 1950.

During the peak year for industrial building in World War II (1942) private industrial building totaled only about 5% of the 1951 figure for private industrial construction in terms of dollars spent.

• **Who pays the bill?**—However, it must be pointed out that there has been a major reversal of the World War II situation when the federal government was responsible for the bulk of industrial construction. In 1951, private industry accounted for almost 90% of the booming industrial construction.

As a direct result of this, public industrial construction in 1951 is about 50% behind last year, both for dollars spent and physical volume. And, compared to 1942, which was the peak year for public industrial construction, 1951 expenditures were only 25% of the 1942 total. On the same basis, physical plant constructed in 1951, in public industrial building, was only 14% of what it was in 1942.

# Lumber output high; prices down

Lumber prices have been faltering. Engineering News-Record's cost index showed a December reading of 98.53 for lumber, down from November and far below the high point this year which came in May with a reading of 102.19. By comparison, the highest point last year was the index reading for October, 1950 (109.18).

There was ample proof that lumber prices have been weak in recent months. Last week, in its 82nd quarterly report to the Secretary of Commerce, private industry's Lumber Survey Committee told why.

After final adjustments have been made, the totals will probably show that the production for the first nine months of this year was at a near-record level, the committee said.

This is expected even though third quarter production showed a decline from the second quarter—the first such decrease since 1945.

Preliminary estimates indicate that production for the first nine months of this year of 29,909 million board ft was 2% greater than in the same period last year, and probably one of the highest January to September outputs on record.

• **Some reduction expected**—Current production is continuing at about the same level as in the third quarter, the committee said.

Analyzing the current market, R. A. Colgan, chairman of the committee, pointed out that both shipments and new orders are trailing the high production. This has resulted in a steady increase in gross mill stocks and fewer unfilled orders.

More evidence of a softening lumber market could be found in the gradual decline of wholesale lumber prices during the third quarter and reluctance on the part of retail yards to purchase on anything but a hand-to-mouth basis.

(*More Business on p. 68*)

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# Fleischmann gives Anaconda approval for $40 million aluminum plant

Although the project was opposed by the Department of Justice and the Department of the Interior, Defense Production Administrator Manly Fleischmann last week authorized Anaconda Copper Co. to go into large scale aluminum production.

The DPA action clears the way for construction of a $40 million aluminum reduction plant at Kalispell, Montana, by Anaconda and the Harvey Machine Co.

• **Withdraw RFC loan**—Mr. Fleischmann disclosed that he also withdrew recommendations for approval of a $46 million loan requested by the Harvey Co. from the Reconstruction Finance Corporation.

He said the two companies will finance the aluminum project without any government assistance except the privilege of writing off most of the investment in accelerated amortization.

Mr. Fleischmann, who was given final authority to decide the controversial issue surrounding the entry of Anaconda Copper Co. into the aluminum field, said that Charles E. Wilson, director of the Office of Defense Mobilization, concurred in the decision.

He said his decision was prompted by greater aluminum requirements in the building of the Air Force from 95 to 143 groups. But any expansion of the aluminum industry will also benefit construction.

Mr. Fleischmann added some other reasons for approving the Anaconda entry.

1. "It is the quickest way to add any appreciable amount of metal to our supply."
2. Anaconda and Harvey Machine Co. are prepared to finance the project themselves "which cannot be said of any other known applicant".
3. Anaconda has not asked permission to construct large fabricating facilities and therefore "there would be no further burden upon scarce materials and equipment".

• **What's next?**—Mr. Fleischmann has asked Secretary of the Interior Chapman to begin negotiations with the two companies for a "suitable long-term contract" to assure the new producers an adequate power supply from Hungry Horse Dam in Montana. The power from Hungry Horse Dam is expected to be available in October or November of next year.

The Secretary of the Interior had opposed the entry of Anaconda into the aluminum field because he felt it would "fail to stimulate competitive business".

Anti-trust officials of the Department of Justice, sharing Mr. Chapman's views, opposed the plan, saying that it would appear that Anaconda would be interested in preserving its position in the copper industry rather than in furnishing the competition "which is extremely needed in the present, three-producer, extremely-concentrated primary aluminum industry".

Denying any possible monopoly, Mr. Fleischmann said the planned 72,000 ton Montana plant would produce less than 4% of the domestic output of aluminum.

## Governors seeking steel for highways, told 'no'

WASHINGTON—Highways can be allotted more structural steel only by taking it away from other public programs such as schools and hospitals. That was the answer state governors received last week when they told mobilization officials that highway cutbacks pose the most critical problem facing the states today. (ENR Dec. 13)

Mobilization director Charles E. Wilson invited the governors to Washington for a one-day session on steel needs. Governors of 15 states attended, and 30 others sent top officials to represent them. Defense secretary Robert E. Lovett and Defense Production Administrator Manly Fleischmann teamed with Wilson in presenting the mobilizers' viewpoint.

Purpose of the meeting was to explain the necessity of curtailed steel allotments to the governors. But the state executives grabbed the ball and tossed their highway problem at the mobilizers.

With defense taking about 20% of the total steel supply, they said, highways would require only 2½% of the remainder for adequate construction and maintenance during the emergency. Wilson and Fleischmann countered that the pinch was not in overall steel but in structural shapes. In structurals, they said, the military and defense industrial demand is nearer 80%, leaving only a small percentage for non-defense programs, including highways.

• **Highways for defense**—To that argument, the state executives pointed out that the nation's highways "are the conveyor belt of the defense program". Both raw materials and finished products have to travel over the

(*Continued on page* 69)

roads. As for maintenance of an adequate highway system, they emphasized that it involved much more than a matter of filling chuckholes.

But the governors ran into the roadblock of mobilization policy on highways. Wilson told them his office would authorize steel for any highway that threatened to break down but not for any new four-lane roads.

By limiting the question of steel allocations to redistribution among the public programs, the mobilization officials drove a wedge into the governors' case for highways. None of the state executives could agree to take structural steel from schools or hospitals in order to assist the road program. Highway proponents maintained that the steel could be found through re-examination of non-essential programs. Wilson and Fleischmann promised to review the whole system of allocations.

- **Tight through 1952**—For the future, they said that steel would be tight through most of 1952, with improvement expected by the end of the year.

To highway officials, the present situation is even more critical than the reduced allotments indicate. Reports coming into the American Association of State Highway Officials up to last week indicated that only 50 to 55% of allotted steel orders for the current quarter had been accepted by the mills. Acceptances in the final three weeks of the quarter would have to step up greatly to come anywhere near the 90 to 95% that the National Production Authority had estimated for the three-month period.

## Housing authority, city battle over housing plan

Los ANGELES—This city's controversial $100 million public housing program last week seemed headed for a showdown battle between the City Housing Authority and an 8-7 majority on the City Council.

After voting blanket approval of the project and apparently settling the matter, the council turned itself around at its next, and stormy, session when Councilman Harold Harby shifted from the pro's to the anti's. With the anti-housing forces solidly in control, the council withdrew the approving resolution and made ready to abrogate Los Angeles' whole agreement with the federal public housing agency.

City Housing Authority commissioners promptly responded by turning down the council's request for an interim suspension of work and promised legal action to make the city fulfill its obligation. The federal government so far has advanced $11,400,000 for site acquisition.

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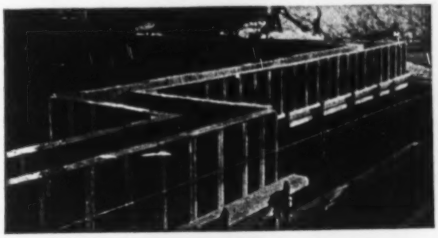

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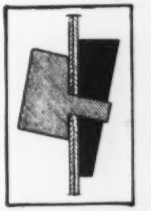

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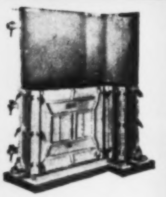

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# UNIT PRICES BID BY CONTRACTORS

## Street work, Toledo, Ohio

For resurfacing car tracks on six streets and removing existing paving, structures and curbs on four Toledo streets and replacing with new, contracts were awarded on the unit prices shown below. M. J. Curtis, city street division engineer handles the work. Wage rates in Toledo are: for common labor, $1.92, for truck drivers, $1.815, for cement finishers, $2.755, for crane operators, $2.755 and for asphalt spreaders $1.55-2.08 according to zone.

Bidders include:

### Car track resurfacing

| | | |
|---|---|---|
| 1C | S. E. Johnson Co., Toledo | $25,332 |
| 2 | Schoen Asph. Paving Co., Toledo | 25,725 |
| 3 | Arthur A. Langenderfer, Inc., Toledo | 26,177 |

| Bids 6-26-51<br>Items | Unit | Quantity | Unit price<br>1 C | 2 |
|---|---|---|---|---|
| Track drips aban & filled with concr | ea | 30 | $15.00 | $30.00 |
| Exist cstgs adj to gr | ea | 15 | 30.00 | 35.00 |
| Exist monuments reset to gr | ea | 3 | 30.00 | 35.00 |
| Bituminous tack coat | gal | 2,121 | 0.35 | 0.40 |
| Asph conc binder crs | ton | 1,262 | 9.35 | 9.10 |
| Asph conc wearing crs Type B | ton | 1,262 | 9.35 | 9.40 |

### Improvement of 4 streets

| | | |
|---|---|---|
| 1C | Koder Constr. & Supply Co., Toledo | $34,680 |
| 2 | E. K. Bridge, Maumee, Ohio | 36,739 |
| 3 | R. I. Bernath, Toledo | 38,276 |

| Bids 6-26-51<br>Items | Unit | Quantity | Unit prices<br>1 C | 2 |
|---|---|---|---|---|
| Tree&stump, 12" or over r&d | ea | 23 | $90.00 | $100.00 |
| Exist conc drive, r&d | sy | 158 | 1.00 | 4.00 |
| Exist pave, incl curb& header r&d | sy | 35 | 1.50 | 4.00 |
| Exist header r&d | lf | 208 | 0.70 | 2.00 |
| Exist curb r&d | lf | 75 | 1.00 | 2.00 |
| Exist sidewalk r&d | sf | 2,122 | 0.08 | 0.10 |
| New 12" RC pipe in place Sec M6-66b | lf | 307 | 5.40 | 4.50 |
| New std inlet incl cstg Type A | ea | 5 | 100.00 | 110.00 |
| New std inlet incl cstg Type B | ea | 1 | 125.00 | 110.00 |
| New std CB incl cstg | ea | 2 | 175.00 | 185.00 |
| New curb bx cstg set to gr | ea | 1 | 60.00 | 75.00 |
| Exist cstgs adj to gr | ea | 4 | 20.00 | 20.00 |
| New 6"x18" conc curb | lf | 20 | 1.80 | 1.50 |
| 6"x16" | lf | 60 | 1.50 | 1.50 |
| New 6" conc drive, incl grdg | sy | 170 | 3.50 | 4.00 |
| New 7" pl conc pave | sy | 18 | 3.80 | 4.25 |
| New 4" conc sidewalk incl gr | sf | 2,212 | 0.32 | 0.40 |
| Asph conc for appro | ton | 10 | 20.00 | 18.00 |
| #4-6-7 Berm stone in place | ton | 3 | 4.00 | 4.00 |
| Berm grading | sy | 3,858 | 0.15 | 0.20 |
| ALTERNATE NO. 2 (No bids on Alt. No. 1) | | | | |
| Roadway excavation | cy | 2,162 | 1.20 | 1.50 |
| 6" pl conc pave incl integral roll curb | sy | 7,163 | 3.40 | 3.40 |

• r&d remove & dispose • CB catch basin

## Asphalt resurfacing, Wash.

The only bid took the contract for four sections of primary State Highway No. 8 in Clark, Skamania and Klickitat Counties, Washington. Bids on 3.851 mi of asphaltic concrete resurfacing were opened July 3, 1951 by the Washington State Highway Dept., W. A. Bugge, Director of Highways, R. H. Kenyon, Engineer, Plans and Contracts. Work began July 18, 1951 and is to be completed within 120 calendar days.

In the city of Camas portions of untreated areas will be tight-bladed, levelled and compacted before extending the asphaltic concrete pavement from the edge of the pavement to existing concrete curbs. All curbs which may be splashed with asphalt during operations must be covered with paper or other protective materials. Contractor must provide flagmen to control traffic at points of entry or exit and cost should be included in unit prices for various items. Flagmen must also be provided by contractor at his own expense during brooming operations. Contractor must remove existing timber bridge in the town of Bingen. All lumber and hardware deemed salvageable by the engineer will remain the property of the State; all other material will become the property of the contractor. Contractor must make his own arrangements for obtaining gravel or other aggregate.

Job is adjacent to a railway. Minimum wage rates in this area are: $1.80 an hour for asphalt spreader operators and vibrator men (paving, sidewalks and curbs); $1.80 for laborers; $2.15 for asphalt spreading machine operators; $2.30 for concrete finishers and power blade operators.

The only bidder was:

| | |
|---|---|
| The United Contracting Co., Portland, Oregon | $91,506 |

| Bids: July 3, 1951<br>Items | Unit | Quantity | Unit prices |
|---|---|---|---|
| Common exc, incl haul | cy | 50 | $2.00 |
| Spec exc, incl haul | cy | 10 | 8.00 |
| Common trench exc, incl haul | cy | 35 | 4.00 |
| Structure excavation | cy | 650 | 4.00 |
| Mech tamper | days | 12 | 35.00 |
| Grav bkfl for fndns in pl | cy | 15 | 5.00 |
| Grav bkfl for drains in pl | cy | 5 | 5.00 |
| F & p cr stone surf, top crse | cy | 460 | 6.00 |

### Asph conc pavement, type 11

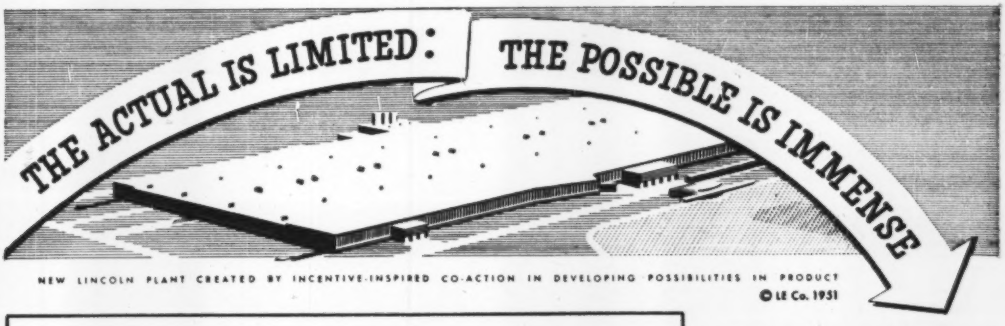
| Items | Unit | Quantity | Unit prices |
|---|---|---|---|
| Cl C wearing crse in pl | ton | 3,180 | 10.60 |
| Cl L level crse in pl | ton | 3,910 | 10.60 |
| Precast white refl traffic buttons in pl | ea | 21 | 3.00 |
| Conc Cl A in pl | cy | 17 | 95.00 |
| Cl C | cy | 3 | 95.00 |
| Stl reinf bars in pl | lb | 390 | 0.35 |
| Struct carbon stl in pl | lb | 650 | 0.20 |
| Std reinf conc culv pipe 12" dia in pl | lf | 123 | 4.00 |
| 18" | lf | 42 | 8.00 |
| 30" | lf | 60 | 10.00 |
| 36" | lf | 15 | 13.50 |
| 48" | lf | 288 | 15.00 |
| Relay conc culv pipe 18" dia | lf | 60 | 4.00 |
| Plain conc or VC sewer pipe 12" dia in pl | lf | 141 | 2.00 |
| Spec manhole in pl | ea | 1 | 300.00 |
| Catch basin in pl | ea | 4 | 120.00 |
| Adjust manholes to grade | ea | 5 | 30.00 |
| One crse conc sidewk & drivewy in pl | sy | 31 | 5.00 |
| Remov conc sidewk & drivewy | sy | 50 | 1.00 |
| Remov portions of box culv | ls | | 300.00 |
| Remov timber bridge | ls | | 15.00 |

## Railroad spur, Fla.

Lump sum bids taken June 5, 1951 by U. S. Engineers, Jacksonville, Fla. on a 9-mi railroad spur into Pinecastle Air Force Base, Orlando, Fla. resulted in a contract awarded to Okeechobee Construction Co. at $142,121. This averages $15,791.26 per mile and is 18.5% below the government estimate for the job.

**Bidding ranged as follows:**

| | | |
|---|---|---|
| 1C | Okeechobee Constr. Co., Jacksonville, Fla. | $142,121 |
| 2 | John A. Benton Constr. Co., Petersburg, Fla. | 196,651 |
| 5 | Ellard Engineers, Ltd., Birmingham, Ala. | 259,859 |



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By **GORDON MAAS LUEPKE**, Architect
Tucson, Arizona

IN the recent construction of the University of Arizona power plant, all-welded, rigid-frame design has enabled us to meet the architectural requirements with minimum cost. The saving of welding over riveting averages 25%, according to steel fabricators.

As shown in the photographs, welded structural design has here achieved a clean construction to speed and cut pipe installation costs. Large, uncluttered space, also made available by welded design, permits proper housekeeping with maximum light and ventilation at ceiling level. The simple fabrication of seats for the Flexicore roof slabs helps further reduce the cost of construction.

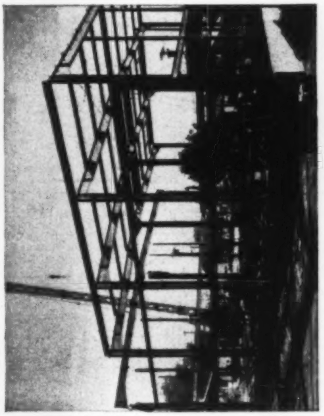

**Fig. 3. 76 ton, 80 foot clear span rigid framework** *for the new University of Arizona power plant. Structural Engineer: Fred Jobusch. Steel Fabricators: Chapman-Dyer Steel Company.*

**Fig. 4. Clean, uncluttered connections** *of rigid frame give maximum light and low maintenance.*

## WELDED STRUCTURAL DESIGNS ALWAYS SAVE STEEL AND LOWER COSTS

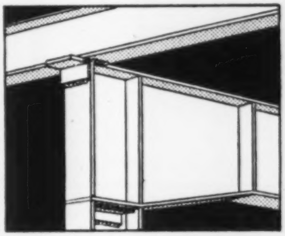

**Fig. 1. Simple detail connection** *at top of bent. Connections are welded all around with ¼" fillet welds.*

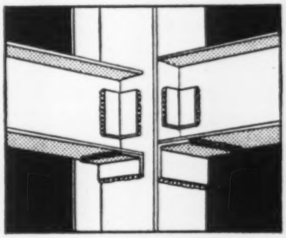

**Fig. 2. Typical detail for mezzanine framing.** *Beams rest on simple clips prior to field welding. All erection bolts are removed after welding.*

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**CLEVELAND 17, OHIO**

# CONSTRUCTION REPORTS

## Bids Asked—Low Bidders—Contracts Awarded

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.*

*ELSIE EAVES, Manager* *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

## NEW ENGLAND

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

**MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks. 100 Nashua St., Boston,

**Construction Rentals, Inc.**, 1125 Page Blvd., Springfield, Mass. LB **$71,211**, est. $80,000. hy. work, Easthampton;

**Cal'an Constr. Corp.**, 539 Hope St., Bristol, R. I. LB **$165,188**, est. $180,000. hy. work, Kingston. Bids Dec. 4. CD 11/20 and 11/27.

## MIDDLE ATLANTIC

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

**Vanbro Contr. Co.**, Emery Ct., Eltingeville, Staten Island 12, N. Y. CA **$98,846**, tide gate chamber and appurtenances in Seaside Blvd. at Naughton Ave. to act as storm water outlet for New Creek area (2/3 ultimate capacity) and sect. of Oakwood Beach sanitary intercepting sewer under the tide gate chamber, etc., NEW YORK. President Richmond Boro, Boro Hall, St. George, Staten Island 1, N. Y. Bids Nov. 14. CD 11/5.

**Chapman Valve Mfg. Co.**, Indian Orchard, Mass., LB **$54,634**, Contr. 429, furnishing, testing, del. two 60 in. c. i. motor-operated butterfly type valves, complete in every respect for installation in Downsville release water chamber of Delaware Aqueduct, NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York 5, N. Y. Bids Dec. 4. CD 11/29.

▲ **Almirall & Co. Inc.**, 53 Park Pl., New York 7, N. Y. LB **$2,936,180**, Contr. P-79, piping and misc. equip. for 74th St. Power Plant, NEW YORK, N. Y. Bd. Transportation, 370 Jay St., Brooklyn 1, N. Y. J. G. White Eng. Corp., 80 Broad St., New York 4, N. Y., engrs. Bids Nov. 21.

## SOUTH

#### BIDS ASKED—HEAVY CONSTRUCTION

† **North Carolina**—B.A. 12/27—U. S. Eng., 308 Customhouse, Wilmington, maintenance dredging, 58,000 cu. yd. Rollinson Channel, 54,000 cu. yd., waterway connecting Pamlico Sound and Beaufort Harbor, 40,000 cu. yd., channel from Back Sound to Lookout Bight. CIVENG 31-075-52-8. CD 11/21.

† **Va., Norfolk**—RAILROAD RELOCATION—B.A. 12/27—Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Zone 11, relocation railroad at Naval Air Station, NOY 28473, Spec. 30112. Plans deposit $10.

† **Fla., Eglin Field**—HEAVY SYSTEMS BLDG.—B.A. 1/8—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., heavy systems bldg. at Eglin Air Force Base, Eng 01-076-52-30. Plans deposit $20.

#### BIDS ASKED—BUILDINGS

**Fla., Jacksonville**—SCHOOL—B.A. 1/3—Duval Co. Bd. Educ., 605 Ocean St., Senior High School, Spires and Fairfax Sts. known as James Weldon Johnson School 152. Approx. $400,000. Plans deposit $25. Bernard W. Close, Consolidated Bldg., archt. CD 10/10/49.

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

† **Sesco Contractors**, Dallas, Tex., CA **$598,409**, turboprop engine test cells at Naval Air Station, NOY 28612, NORFOLK, VA. Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Sept. 11. CD 10/4, under LB.

▲† **Sesco Contractors**, Dallas, Tex., LB **$1,994,514**, radio station at U. S. Naval Communications Station, NOY 28472, NORFOLK, VA. Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids Nov. 13. CD 10/8.

† **Layne Central Co.**, 2075 Chelsea Ave., Memphis, Tenn. CA **$25,417**. (Late Bid). sinking 4 wells in county sect. of Louisville and Jefferson Co. flood walls, KENTUCKY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. CD 12/5, under LB.

**Real Electric Corp.**, 1701 Triplett St., Owensboro, Ky. CA **$88,922**. 17.3 mi. 66 KV and 1 mi. 69 KV transmission line, Meade Co., KENTUCKY. Meade County Rural Electric Co-operative Corp., Brandenburg, Ky. Fleming & Patterson, 508 E. Main St., Lexington, Ky., engrs. CD 1/12/50.

**Griffin Constr. Co.**, 300 Walnut St., Owensboro, Ky. CA **$69,646**. Sect. 1, 19 mi. rural distr. lines, sys. imprvs., Nelson Co;

**Real Electric Co.**, 1701 Triplett St., Owensboro, Ky. CA **$78,496**. Sect. 2, 4.36 mi. 69 KV transmission line, 1,500 KVA sub-station, Nelson Co., KENTUCKY. Salt River Rural Electric Co-operative Corp., Bardstown, Ky. Fleming & Patterson, 508 E. Main St., Lexington, Ky., engrs. CD 8/23/48.

### BUILDINGS

#### LOW BIDS AND CONTRACTS

† **Mitchum Constr. Co.**, Columbia, S. C., LB **$108,125**. rebuilding SERVICE CLUB, Eng 38-081-52-17, FORT JACKSON, S. C. U. S. Eng., 33 Customhouse, Charleston, S. C. Bids Nov. 21.

▲† **Southeastern Constr. Co.**, 301 W. 2 St., Charlotte, N. C., **T. A. Loving & Co.**, Box 989, Goldsboro, N. C. and **Doyle & Russell**, Central National Bank Bldg., Richmond, Va. CA **$22,701,021**. troop HOUSING, Serial No. Eng. 15-029-52-6, FORT KNOX, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. CD 11/29, under LB.

▲† **Derby Constr. Co.**, 4504 Poplar Level Rd., Louisville, Ky. and **Perkins Constr. Co.**, Frankfort, Ky. CA **$2,835,382**. 2 WAREHOUSES, Lexington Signal Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. CD 11/27, under LB.

## MIDDLE WEST

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, rejected bids Nov. 20, b. conc. paving, construct concrete bridge, concrete beam exten. to existing concrete bridge, S.R. 46, Parts 1 and 2, Columbiana and Mahoning Counties, LB **$1,004,442**, est. $823,700. CD 11/27, under LB.

▲ **OHIO**—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

**Baker & Hickey Co.**, P.O. Box 5008, Tri-Village Station, Columbus, O., CA. **$1,464,437**, est. $1,531,700. Type T-71, T-35 and concrete, steel structures, U.S. R. 23, at Chillicothe, Ross Co.;

**General Asphalt Paving Co.**, 307 Kobler Bldg., Canton, O. CA. **$1,044,626**, est. $998,500, Type T-35, concrete slab bridge, continuous steel beam bridge, concrete box culvert Columbiana, Mahoning and Stark Counties. Bids Nov. 20. CD 11/27, under LB.

▲ **S. A. Healy Co.**, 561 E. 7 Mile Rd., Detroit, Mich., and **Gargaro Co., Inc.**, 40 E. 7 Mile Rd., Detroit, Mich. CA **$2,979,000**. 1¼ mi. Freud Sewer with inside diam. of 16 ft. will connect Fox and Conner Creeks, beginning at Jefferson and Manistique, will run under Manistique and Freud Aves. to new Freud Pumping Station on Conner Creek, DETROIT, MICH. City, Dpt. P. Wks., Guardian Bldg., Detroit, Mich. Bids Nov. 20. CD 10/25.

### BUILDINGS

#### LOW BIDS AND CONTRACTS

**John A. Krausmann Co.**, 6212 Woodward St., Detroit, Mich. CA **$82,000**. 1 story, brick LABORATORY addn., E. Nevada St., DETROIT, MICH. Allied Materials Corp., 5200 E. Nevada St., Detroit, Mich. CD 11/12.

### PROJECTS COVERED

#### Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

#### Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

#### Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

#### Symbols and Abbreviations Include:

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over. |
| B.A. | Bids Asked |
| ENR | Engineering News-Record |
| CD | Engineering News-Record Construction Daily |

## WEST OF MISSISSIPPI

#### BIDS ASKED—HEAVY CONSTRUCTION

▲† **Nebraska**—B.A. On or About 1/10—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Reservoir Clearing, Part II, Harlan County Dam and Reservoir, Republic River, Missouri River Basin, CIVENG 23-028-52-96. Total est. $1,000,000. CD 6/1/44.

† **Tex., Lackland Air Force Base (Br. San Antonio)**—GROUP ADMINISTRATION and STORAGE BLDGS.—B.A. 1/15—U. S. Eng., 606 Santa Fe Bldg., Galveston, frame type group administration and group storage bldgs., Inv. No. ENG 41-243-52-38. Approx. $500,000. Extended date. CD 12/4.

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

**Thompson, Haight & Keister**, 2006 N. Portland Ave., Oklahoma City, 7, Okla. CA **$168,887**. 39.6 mi. rural distr. lines, sys. imprvs., Dickinson Co., KANSAS. D. S. & O. Rural Electric Co-operative Assoc., Solomon, Kan. Richardson Electrical Eng. Co., Solomon, Kan., engr. CD 8/12/48.

**A & A Constr. Co.**, 415 Okmulgee Ave., Muskogee, Okla., LB **$85,438**, est. $101,640, water main extens., EDMOND, OKLA., City, Edmond, Okla. Bids Dec. 3. CD 11/12.

**Jim Wells Co.**, Court House, Alice, Tex., Force Account. Approx. **$80,000**. 6 mi. farm-to-market road constr. from end of F. M. 85 west of Aley; Approx. **$63,500**, 4 mi. construction farm to market road from State Hy. 31 at Brownsboro south to New Hope, ALICE, TEX. W. W. Coym, Alice, Tex. CD 10/30.

† **R. E. McKee, Inc.**, Box 562, El Paso, Tex., LB **$86,520**. assist take-off fuel storage, incl. 4 rein.-con. igloos, for Biggs Air Force Base, Serial No. 29-005-52-11, EL PASO, TEX. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids Nov. 30. CD 11/1.

† **U. S. Eng.**, Box 1538, Albuquerque, N. M. will not construct airmen's dormitories at Biggs Air Force Base, Serial No. 29-005-52-20, EL PASO, TEX. Project cancelled. CD 10/24.

**Bexar Co.**, Court House, Comrs. Court, San Antonio, Tex., Force Account. addnl. repairing, imprvs. roads **$75,000**, Precinct 1; **$90,000**, Precinct 2; **$85,000**, Precinct 3; **$110,000**, Precinct 4, SAN ANTONIO, TEX. Grand total $360,000. C. I. Swan, San Antonio, Tex., co. engr. CD 10/18.

† **U. S. Atomic Energy Comn.**, Los Alamos, N. M., rejected bids Nov. 28, incinerator addns. alterations, Inv. No. 291-52-33; LOS ALAMOS, N. M. CD 11/13.

† **U. S. Eng.**, Box 1538, Albuquerque, N. M., will not construct airmen's dormitories, Serial No. 29-005-52-20. ROSWELL, N. M. Project cancelled. CD 10/24.

### BUILDINGS

#### LOW BIDS AND CONTRACTS

**J. A. Kelly**, 2347 Glenn Hawn St., Houston, Tex. Owner Builds. **$410,000**. 15 DWELLINGS, HOUSTON, TEX. CD 11/29.

## FAR WEST

#### BIDS ASKED—HEAVY CONSTRUCTION

**Wash., Steilacoom**—B.A. 12/27—State Dpt. P. Institutions, Olympia, sewage treatment plant at Western State Hospital. $60,000. Plans deposit $20. Carey & Kramer, 1917 1 Ave., Seattle, Zone 1, engrs.

† **Wash., Everett**—QUARTERS—B.A. 1/4—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, quarters for 40 bachelor officers at Paine Field, ENG 45-108-52-122. Plans deposit $15. CD 11/5.

† **Wash., Tacoma**—ALERT APRON—B.A. 1/8—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, enlarging alert apron at Mc Chord Air Force Base, ENG 45-108-52-123. $100,000. CD 7/27.

#### BIDS ASKED—BUILDINGS

▲ **Utah, Ogden**—BUILDINGS—B.A. 12/28—State Bldg. Bd., State Capitol, Salt Lake City, 4 new bldgs. for Weber Junior College's new campus. $1,000,000. Lawrence D. Olpin, Kiesel Bldg., archt. CD 2/4/49.

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

**UTAH**—State Road Comn., State Capitol, Salt Lake City,

**W. W. Clyde & Co.**, Springville, Utah, CA. **$596,045**, est. $541,788, 3 in. plant mixed bit. 3.449 mi. roadway between 4 mi. north of Price and Helper, FAP F-24 (8), Carbon Co.;

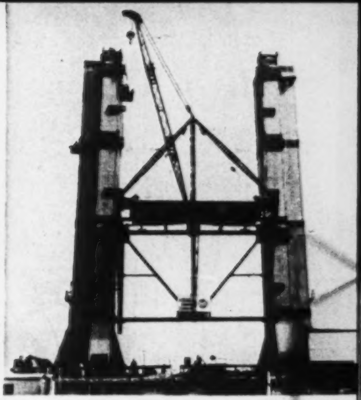
**Sorensen Bros. & England Bros.**, Murray, Utah, CA. **$188,886**, est. $221,786. 2 in. road mixed bit. 9.537 mi. road between Utah Co. Line and Deseret Chemical Depot, FAP No. AD-11, Tooele Co. Bids Nov. 27.

(Continued on page 75)

# WORLD'S SIXTH LONGEST SPAN

## Another outstanding example of American Bridge ingenuity and dependability

**THE DELAWARE MEMORIAL BRIDGE,** Wilmington, Delaware. This graceful and useful structure supplants the ferry service on U. S. Route 40 between Pennville, New Jersey, and New Castle, Delaware, eliminating a bottle-neck at that location. It is estimated that over 5,000,000 motor vehicles will use the bridge annually. The first steelwork for the superstructure was placed by American Bridge Company on Feb. 2, 1950, and the bridge completed in one and one-half years, notwithstanding the extremely severe winter of 1950-51.



**ERECTION OF ONE** of the two identical towers has progressed to the fourth section. Preparations are being made to "jump" the creeper to the next level. Completed towers rise 417 feet above the foundations—a height approximately that of a thirty-five story building.

HAVING FOUR traffic lanes, each 12 feet wide, a 3-foot median strip, and two 3-foot sidewalks, The Delaware Memorial Bridge provides a safer, speedier connecting link between the states of Delaware and New Jersey. The 2,150-foot main suspension span gives a vertical clearance of 175 feet above the 1,500-foot channel, sufficient for even the largest ships.

American Bridge Company fabricated and erected the steel superstructure, fabricated the steelwork for the anchorage foundations, and for the tower caissons, and spun the heavy suspension cables.

The complete story of American Bridge Company's part in the building of this great bridge has been published in an interesting new booklet. Contains many photographs showing various stages of construction. Write for your copy.

**CATWALK VIEW** from one of the main towers as wire is being spun into suspension cables. Pencil-thick wires, four at a time, are shown being carried across the Delaware River by a four-foot spinning wheel. Bridgemen are placing the wires in strands as they come from the wheel. The spinning operation continued day and night, interrupted only by high wind and severe cold.

### INTERESTING FACTS THE DELAWARE MEMORIAL BRIDGE

| | |
|---|---|
| Length of Main Suspended Span | 2,150′ |
| Length of Each Suspended Side Span | 750′ |
| Total Length of Suspended Spans | 3,650′ |
| Length of Delaware Approach | 3,770′ |
| Length of New Jersey Approach | 3,087′ |
| Total Length of Bridge between Abutments | 10,785½′ |
| Total Estimated Weight of Superstructure | 73,141,500 # |
| Height of Towers Above Piers | 417′ |
| Size of Main Cables | 19¼" Dia. |
| Size of Wire Suspenders | 2" Dia. |
| Size of Hand Ropes | 1" Dia. |
| Weight of Main Cables | 6,978,000 # |
| Total Length of Suspender Cable | 56,000′ |
| Length of Hand Rope | 15,200′ |
| Total Estimated Cost of Bridge | $43,900,000 |

Owner:
Delaware State Highway Department
Engineers:
For the Delaware State Highway Department—Howard, Needles, Tammen & Bergendoff
Consultants:
O. H. Ammann
Moran, Proctor, Freeman & Mueser
Consulting Architect:
A. Gordon Lorimer
Superstructure:
Fabricated and Erected by American Bridge Co.

AMERICAN BRIDGE COMPANY
General Offices: 525 William Penn Place, Pittsburgh, Pa.
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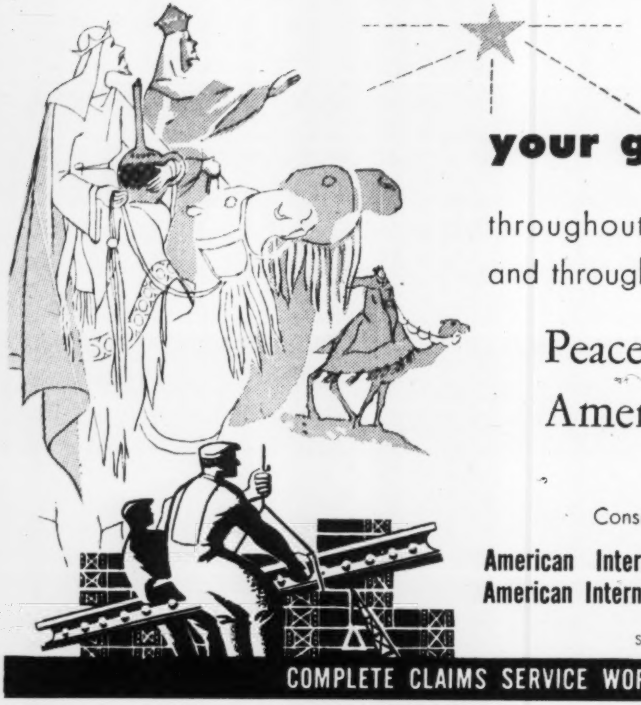
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

# AMERICAN BRIDGE

UNITED STATES STEEL



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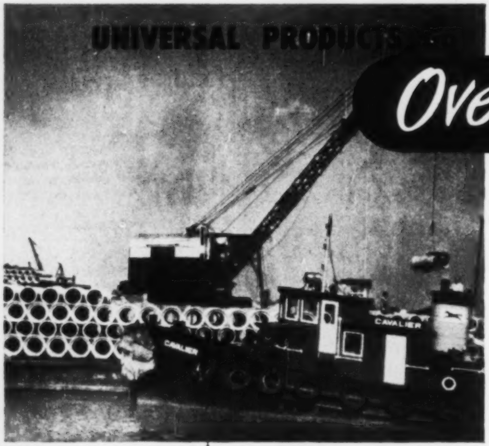

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(Continued from page 72)

† **J. A. Terteling & Sons**, 4011 Fairview Ave., Boise, Idaho, CA, **$183,409**, est. $270,394, relocate 3.8 mi. Primary State Hy. 3, Inv. 52-40, Walla Walla Co., WASHINGTON, U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Dec. 4. CD 10/30.

† **Bonnell Constr. Co.**, 760½ Commerce St., Tacoma, Wash., CA, **$208,572**, alert hangar addn. at Mc Chord Air Force Base, Inv. 52-91, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Dec. 4. CD 11/21.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **The Paramount Housing Corp.**, 4015 W. Jefferson Blvd. Los Angeles, Calif., LB, **$4,235,314**, construct, manage and finance 571 unit HOUSING. Title VIII, EL TORO, CALIF. Dpt. Navy, San Diego, Calif. Bids Nov. 29. CD 11/7.

## CANADA

BIDS ASKED—HEAVY CONSTRUCTION

**Que., Montreal**—TUNNEL—B.A. 2/2—Executive Com., City Hall, 1,100 ft. traffic tunnel, 75 ft. wide, on Christopher Colomb St. $600,000. CD 9/10.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

**QUEBEC**—Province of Quebec, Quebec City, Que.

**A.** Savard, 161 Blvd. du Moulin, Chicoutimi, Que., **CA. $200,000**, bridge replacement over River du Moulin, Chicoutimi. CD 10/10.

**C.** Gagnon, 7 Blvd. Bernard, Drummondville, Que., **CA, $100,000**, about 13 miles drainage scheme along Rivier Salvail, La Presentation, St. Hyacinthe Co., QUEBEC, Province of Quebec, Dpt. Agriculture, Quebec City, Que. Frenee Marsolais, Drummondville, Que., engr.

### BUILDINGS

LOW BIDS AND CONTRACTS

**Benjaminson Construction Co. Ltd.**, 1202 Child's Bldg., Winnipeg, Man. Owner Builds. **$380,000**, 48 DWELLINGS, WINNIPEG, MAN. CD 12/7.

**R. E. Stewart Constr. Corp.**, 268 Wellington E., Sherbrooke, Que., CA, **$300,000**, 40x485x80 ft., concrete, steel. FACTORY, LIMOILOU (Postal Dist. Quebec City), QUE. Deerfield Glassine Co., Inc., Monroe Bridge, Mass., U. S. A. A. Belanger, 16 Viny St., Sherbrooke, Que., archt.

# PROPOSED PROJECTS

## WATER SUPPLY

**La., Gretna**—Jefferson Parish Waterworks Dist. 5, Hy. 30, Gretna, **$524,000** bond election Dec. 28. WW imprvs., Waggaman.

▲ **Mo., St. Louis**—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, and Conway B. Briscoe, dir. P. Utilities, 312 City Hall, Zone 3, reconstr. primary and sedimentation basins; replacing primary service pumps, etc.; old buildings over primary service pump pit; new water screens and bldg. for wet well; reconstr. coagulant house; head house for chemical laboratory; earth fill around primary service pumping station, and coagulant house, all at Chain of Rocks on Mississippi River at northern edge of city. **$2,000,000.** Thomas J. Skinker, 312 City Hall, water comr. CD 11/28/45.

## SEWERS, WASTE DISPOSAL

▲ **Ind., Muncie**—Bd. Pub. Wks., City Hall, 40 mi. sanitary sewerage system, **$2,500,000.** Havens & Emerson, 1140 Leader Bldg., Cleveland, O., consult. engrs. Ward M. Harland, City Hall, city engr.

▲ **O., Dayton**—City, City Hall, sewage treatment plant, new primary settling facilities and addnl. secondary settling facilities, **$935,620**; relief storm sewers, Lorain Ave., **$3,750,000**; Brown St. **$92,000**; St. Paul St., **$173,000**; Apple St. **$230,000**; McLain St. **$252,000**; Burns Ave. to serve area bounded by Wayne Ave., Fifth and Montgomery Sts., **$870,000.** Edwin L. Pollard, Ch. of Bureau of Sewers. CD 10/23/45.

## BRIDGES

**Kan., Westmoreland**—Pottawatomie Co., R. D. Siegle, clk., Westmoreland, bridge over Kansas River, near here. $900,000. Finney & Turnipseed, New England Bldg., Topeka, consult. engrs.

▲ **WEST VIRGINIA**—State Rd. Comn., Charleston, **Montgomery**—bridge, **$2,742,000.**

## STREETS AND ROADS

▲ **Ill., Chicago**—Cook Co., County Bldg., paving 1.75 mi. Central Ave. from Devon Ave. to Mulford Rd., Chicago, Lincolnwood, Skokie, **$300,000**; paving 1.15 mi. Grand Ave. from Manheim to Eddington Aves., Franklin Park, **$240,000**; resurf. 3.13 mi. Irving Park Rd. from Crawford to Neenah Aves., Chicago, **$300,000**; resurf. 3.35 mi. Morgan St. from Eggleston to Anthony Aves., Chicago, **$300,000**; resurf. 3 mi. Morgan St. from 63 to 87 Sts., Chicago, **$275,000**; paving 2.65 mi. State Rd. from Cicero Ave. to Narragansett Ave., Bedford Park, **$345,000**; resurf. 2.5 mi. Western Ave. from 34 to 54 Sts., Chicago, **$250,000**; resurf. 3 mi. 26 St. from Cicero Ave. to Harlem St., Riverside, Berwyn, Cicero, **$300,000**; paving 2½ mi. 55 St. from Manheim Rd. to Cook-DuPage Co. line, Lagrange, Hinsdale, **$463,000**; resurf. 7.25 mi. 127 St. from Indiana Ave. to State Rt. 83, Chicago and Blue Island, **$190,000.** CD 3/3/49.

**La., Eunice**—City, voted **$350,000** bonds, street paving and drainage. CD 10/31.

**Mich., Mason**—Bd. Supervs., Ingham Co., Mason, 2nd road maintenance, **$255,000**, road constr. **$133,700**, primary road maintenance, **$240,000**, primary road constr., **$264,475**. Frank K. Evans, Mason, co. road engr. CD 10/31/50.

**Neb., Lincoln**—City, City Hall, 75 blocks pavement between 56 and 66 Sts., Adams and Logan Sts. **$400,000.** D. L. Erickson, city engr.

**N. Y., Martinsburg**—Town, 23.02 mi. roads. **$248,900.**

**O., Springfield**—City, R. M. Hoisington, mgr., Springfield, street imprvt. program for 1952. **$500,000.** Paul G. Miller, comr. for city. CD 5/2/46.

**Tex., Rankin**—Upton Co., Rankin, voted bonds, construct hard surfaced roads, 15 mi. Precinct 1, **$202,395**; 18 mi. Precinct 2, **$242,874**; 20 mi. Precinct 3, **$269,860**; 10 mi. Precinct 4, **$134,930**. CD 11/8.

▲ **Saskatchewan**—Province of Sask., Regina, 400 mi. road to uranium fields of Sasketchewan via Meadow Lake. **$6,000,000.** Dpt. Hys., Regina, engr. CD 10/1/43.

## EARTHWORK, WATERWAYS

▲ **North Carolina**—French Broad Electric Membership Corp., Marshall, hydro-electric dam on Crane River, Yancey Co. **$5,000,000.** CD 12/3.

**Tex., Raymondville**—Willacy Co. Water Control & Imprvt. Dist. 1, Raymondville, bond election Jan. 8, imprv. irrigation sys., mostly increasing canal capacity, at Monte Alto. **$500,000.** CD 6/14/49.

## AIRPORTS

▲† **Fla., Jacksonville**—AIR STATION—Dist. P. Wks. Office, Box 365, Naval Base, S. C., plans by Kemp, Bunch & Jackson, Fla. Theater Bldg., construction items at Naval Auxiliary Air Station. Total **$9,926,600**. CD 2/1.

**Fla., Miami**—HANGAR—National Airlines, Inc., c/o Steward & Skinner, archts., 223 S. E. 1 St., hangar at Miami International Airport, **$500,000.**

▲ † **Ia., Sioux City**—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., Air Defence Command Intercepting Squadron Base, **$1,746,000.** Buell & Winter Eng. Co., 508 Insurance Exchange Bldg., Sioux City, Ia., and Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, Neb., consult. engrs. CD 10/22.

**Ia., Waterloo**—AIRPORT IMPRVS.—City, airport imprvs. **$670,000.** CD 5/15.

**Mass., East Boston**—CONTROL TOWER—State, Station 21, General Boutwell Bldg., Logan Airport, control tower, Logan International Airport, L-401, **$500,000.** CD 4/13/48.

**Mich., Detroit**—AIRPORT—Detroit-Wayne Major Airport, Middlebelt and Expressway Sts., airport, installation high intensity lights on instrument runway. **$373,467.** Leroy C. Smith, Cadillac Tower, co. engr. CD 8/29.

**Minn., Albert Lea**—AIRPORT IMPRVS.—City, c/o R. Dunn, acting city engr., municipal airport, incl. acquirement of site, grade, resurf. 1 strip. **$300,000.** CD 9/18/47.

▲† **N. H., Portsmouth—Newington**—AIR BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., plans by Hersey & Spaulding, Town Hall, Durham, Keeler & Isaac, 922 Elm St., Manchester, Alfred T. Granger Assoc., Hanover, Tracey & Hildreth, Nashua, and Maurice E. Witmer, 9 Hillside Ct., Portsmouth, engrs.-archts., Air Force Base. **$46,000,000.** CD 9/13.

† **N. M., Roswell**—DORMITORIES—U. S. Eng., Box 1538, Albuquerque, (A) two 3 story, 36x219 ft. masonry paneling, concrete frame dormitories, evaporative cooling sys., etc. Approx. **$350,000.** outside utilities, gas water, sewers, electrical, roads, Approx. **$90,000**; outside aerial electrical work, at Walker Air Force Base, Serial No. 29-005-52-25.

▲† **Va., Burlington**—AIR BASE—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., plans by Freeman, French & Freeman, 138 Church St., addnl. facilities Burlington Air Base. **$1,070,000.** CD 6/28.

▲ **B. C. Vancouver**—AIR BASE—Dpt. Transport, Ottawa, Ont., air base at Rocky Point Area, Approx. **$1,000,000.**

## LATIN AMERICA

▲ **Guatemala, Guatemala City**—Glen McCarthy Interests & Assoc., Shell Bldg., Houston, Tex., plans hotel to be known as the "Quetzal." **$5,000,000.**

▲ **Mexico, San Antonio**—Sria. de Recuros Hidraulicos (Hydraulic Resources Ministry) P. de lo Reforma, 69, Mexico City, plans irrigation dam. **$2,008,000.**

## PUBLIC BUILDINGS

**Ark., Camden**—SCHOOL—School Dist. 35, c/o F. W. Whiteside, supt., Camden, plans by Herman Voelcker, 1203 Dennis St., Houston, 4, Tex., 1 story, brick, tile, concrete Elementary-Junior High School, **$554,354.**

▲† **Ark., Shumaker** (Br. Camden)—DEPOT—Dpt. Navy, 18 St. and Constitution Ave. N. W., Wash. 25, D. C., magazines, storehouses, Naval Ammunition Depot, **$33,000,000**, E. M. Freeman & Assoc., Texas Eastern Bldg., Shreveport, La., consult. engrs.

**Calif., Ukiah**—SCHOOLS—Ukiah Union High School Dist., Ukiah, voted **$600,000** bonds, imprv. schools. CD 10/29.

**Conn., Danbury**—HOUSING—City Housing Auth., Joseph Canole, chn., City Hall, plans by Frank A. LaCava, 248 Main St., 60-unit housing, Millridge Site, **$742,000.**

**Conn., Meriden**—SCHOOL—City Bd. Educ., Meriden, plans by Willard Wilkins, 945 Asylum Ave., Hartford, brick, steel, concrete school, **$500,000.** CD 11/5.

▲ **Conn., Norwich**—SCHOOLS—City, Anthony W. McConnell, chn. School Bldg. Comn., plans by J. E. McGuire, 157 Washington St. 1 story, brick, steel concrete Central School, Rockwell St., **$935,297**; plans by Arthur E. Thomas, 287 Main St., 1 story, brick, concrete, steel, East Great Plain School, Salem Turnpike, **$880,000**; 1 story, brick, steel, concrete Taftville School, off Fox Hill Rd., **$408,845**; plans by Arthur M. Thompson, 224 Washington St., 1 story, brick, steel, concrete Greenville School, Old Canterbury Town Rd., **$572,580**; plans by Chandler & Palmer, 16 Franklin St., 1 story, brick, steel, concrete consolidated school, 15 St., **$1,650,000.** CD 11/22/49.

▲ **Conn., Norwich**—THERAPY—State Comn., P. Wks. State Office Bldg., Hartford, occupational therapy bldg., Norwich State Hospital, **$1,600,000.** CD 10/17/49.

▲ **Ga., Valdosta**—HOUSING—Valdosta Housing Auth., Valdosta, plans by Felton Davis, Jas. B. Addy, Lloyd Greer & Joe E. Bright, Valdosta, housing, Projects GA 100-3 and GA 100-4, 250 units. **$2,000,000.** Patchen & Zimmerman, Augusta, consult. engrs.

**Idaho, Pocatello**—SCHOOL—School Bd., Pocatello, voted bonds Junior High School at Alameda **$734,000.** CD 11/17.

▲ **Ill., Chicago**—UNDERGROUND PARKING FACILITY—Chicago Park Dist., 425 E. 14 St., Zone 5, 2 level, 800,000 sq. ft., underground parking facility in Grant Park. **$8,500,000.** Ralph H. Burke, 20 N. Wacker Dr., consult. engr. CD 2/21/50.

**Ill., Hinsdale**—SCHOOLS—School Dist. 181, 55 and Grant Sts., plans by Fugard, Burt, Wilkinson & Orth, 520 N. Michigan Ave., Chicago, Zone 11, Ill., grade school, Clarenden Hills, **$450,000**; Garfield School, **$500,000.**

**Ind., Crown Point**—INFIRMARY—Bd. Comrs., Lake Co., Court House, plans by Joe H. Wildemuth, 527 Broadway, Gary, 100-bed 2 story, bsmnt., brick county infirmary, **$600,000.**

**Ind., Indianapolis**—SCHOOL—Bd. School Comrs., V. M. Bailey, bus. dir., 150 N. Meridian St., Zone 4, plans by Merritt Harrison, 1001 Archts. & Engrs. Bldg., Zone 4, 1 story, bsmnt., H-shaped irregular, brick, rein.-con. school, 34 St. and Emerson Ave. **$500,000.**

**Ia., Mason City**—SCHOOL—Bd. Educ., Mason City, plans by Hansen & Waggoner, Mason City, school. **$595,000.** Bonds voted. CD 12/4

**Ia., Shenandoah**—SCHOOL—Bd. Educ., Shenandoah, bond election Dec. 12, 2 grade schools and remodeling high school, **$505,000.** CD 5/18.

▲ **Kan., Independence** — SCHOOL — Bd. Educ. voted **$1,250,000** bonds Nov. 27, high school and junior college. CD 11/21.

**La., Bossier City** — SCHOOL — Bossier Parish School Bd., c/o R. V. Kerr, Benton, plans by Peyton & Bosworth, Continental American Bank Bldg., Shreveport, 1 story, brick, tile Upper Elementary School, LA 52-C-1-C, **$505,000.** Applied for $473,000 grant.

▲ **La., Lake Charles**—SCHOOLS—Calcasieu Parish, Dist. 22, c/o H. A. Norton, supt., plans by Dunn & Quinn, 1735 South St., 1 story, brick, tile Lincoln Negro Elementary High School, LA 51-C-10-B, **$499,950**; 1 story, brick, tile Junior High School, incl. library, LA 51-C-8-B, **$745,150.**

**La., Sulphur**—SCHOOL—Calcasieu Parish School Bd. Dist. 30, c/o H. A. Norton, supt., plans by Dunn & Quinn, 1735 South St., Lake Charles, 1 story, brick tile concrete school, LA 52-C-11-B, **$600,550.** CD 11/9.

▲ **Mass., Boston**—HOSPITAL—City, Institutions Dpt., City Hall Annex, surveys 2 story, bsmnt., brick, concrete, steel Chronic Hospital addn., Long Island Boston Harbor. **$1,000,000** Crandall Engineering Co., 261 Franklin St., consult. engr. CD 1/10/47.

▲ **Mass., Cambridge** — SCHOOL — City, Supt. Schools, 1700 Cambridge St., school, **$1,000,000.**

† **Mass., Falmouth**—FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, addnl. facilities, classrooms, portable bleachers, etc. **$591,500.**

▲ **Mass., Framingham**—HOUSING—Framingham Housing Auth., Admin. Bldg., Arsenal Rd., plans by Glaser & Gray, 105 Newbury St., Boston, 126 housing units, **$1,200,000.** CD 11/4/48.

▲ **Mass., Holyoke**—HOUSING—Holyoke Housing Auth., Jackson Parkway, 500 housing units. **$2,000,000.** CD 9/14/48.

▲ **Mass., Saugus**—SCHOOL—Town, Town Hall, high school, Broadway, **$2,500,000.** CD 10/24.

**Mass., Worcester**—SCHOOL—City, Bd. Trustees Boys' Trade High School, Grove St., plans by Delmar L. Lambert, designer, 2 Stoneland Rd., brick, block, steel Boys' Trade High School, **$600,000.** CD 8/26/43.

▲ **Mass., Worcester**—SCHOOLS—City, School Dpt., 32 Franklin St., school, Oneida Ave. and Governors St., **$540,000**; school, Great Brook, Valley Gardens, **$540,000**. CD 8/26/43.

**Mass., Worcester**—SCHOOL—City, School Dpt., 32 Franklin St., school, Ontario Ave., **$620,000**.

▲ **Mich., Ann Arbor** — LABORATORY — University of Michigan, Bd. Regents, Ann Arbor, atomic energy Research laboratory, Michigan Memorial Phoenix Proj. **$1,000,000**. CD 2/7/50.

▲ **Minn., Austin** — SCHOOLS — Bd. Educ., Marjorie Hamlin, clk., **$2,945,000** bond election Dec. 10, 2 grade schools, Nevein Grade School addn., and vocational bldg. addn., Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 6/6/46.

**Minn., Austin**—LIGHT PLANT—City, Bd. Water, Electric, Gas & Power Comn., W. D. Dunlap, secy., municipal light plant addn., install turbine, **$900,000**, D. V. Edeskuty, 1418 Foshay Tower, Minneapolis, consult. engr.

▲ **Minn., Hopkins**—SCHOOL—Bd. Educ., L. H. Tanglen, supt. schools, high school, north of Hy. 7 on 13 Ave. **$1,000,000**. CD 12/12/50.

**Minn., LeSueur**—SCHOOLS—Bd. Educ., H. Lemke, clk., plans by E. D. Corwin, 818 First National Bank Bldg., St. Paul, grade school and high school addns. **$700,000**. CD 11/14/45.

▲ **Miss., Yazoo City**—POWER PLANT—City, voted **$1,700,000** bonds, power plant imprvs. CD 11/13, under Unclassified.

▲ **Mo., Kansas City**—SCHOOLS—Bd. Educ., c/o Hunt C. Moore, pres., Library Bldg., Zone 6, plans by Neville, Sharp & Simon, 12 St. and Walnut Bldg., Kansas City 6, Mo., Pinkerton School adn,. 5409 Agnes St., **$300,000**; plans by Keene & Simpson, 15 W. 10 St., Kansas City 6, Mo., Intercity High School, between Independence and Kansas City, **$1,750,000**; plans by Gentry & Voskamp, 4 W. 13 St., Kansas City 6, Mo., Booker T. Washington School, (negro), **$1,000,000**; plans by Marshall & Brown, 1016 Baltimore St., Kansas City 6, Mo., Junior High School (negro), **$1,300,000**; plans by Kivett & Myers, 1016 Baltimore St., Kansas City 6, Mo., Douglas Grade School, (negro), **$450,000**. CD 4/13/51.

▲ **Mo., Kansas City**—HOUSING—Kansas City Housing Auth., c/o Forest D. Byers, chn., City Hall, Zone 6, plans by Neville, Sharp & Simon, 12 St. and Walnut Bldg., Kansas City 6, Mo., 49 buildings, negro housing, 12 and 14 Sts. and Pasco and Woodland Sts., **$5,628,000**. CD 1/23/51.

▲ **N. H., Dover**—HOUSING—Auth., Municipal Bldg., Dover, plans by Edward J. Shields, 1245 Hancock St., Quincy, Mass., 125 units, 4 bldgs., wood frame housing. **$1,375,000**.

**N. D., Grand Forks**—MEDICAL SCIENCE—State Bd. Higher Educ., Bismarck, plans by Wells & Denbrook, 425 Kittson Ave., medical science bldg. addn. at University of North Dakota. **$600,000**.

▲ **O., Dayton**—SCHOOLS—Bd. Educ., 232 N. Main St., Fairview High School addn., remodeling, **$720,000**; West Side School, Denner Ave. and Miami Chapel Rd. **$715,000**; Patterson Park School **$535,000**; school, Auburndale and Stein Sts. **$535,000**; school, Wright and Fifth Sts. **$475,000**; Residence Park School addn. **$415,000**; Cornell Heights School addn. **$360,000**; McGuffey School addn. **$300,000**. CD 11/12.

▲ † **Pa., Annville**—LAUNDRY, etc.—U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md., designs by Lacy, Atherton & Davis, engrs.-archts., 1729 N. Front St., Harrisburg, laundry **$1,431,000**; 3 warehouse and steam plant. CD 2/1/51.

▲ **Pa., Cornwell Heights**—HIGH SCHOOL—Bensalem Twp. School Dist., Cornwell Heights, plans by H. F. Everett & Assoc., engrs. and archts., 512 Hamilton St., Allentown, high school. **$1,550,000**. CD 12/17/47.

▲ † **Tex., Bastrop**—CAMP BUILDINGS—U. S. Eng., 606 Santa Fe Bldg., Galveston, complete reactivation of Old World War 2, Camp Swift Army Training Camp, incl. troop housing, admin. bldgs., warehousing, etc. Approx. **$10,000,000**; partial reactivation, Approx. **$1,000,000**. CD 7/2.

▲ † **Tex., Brownwood**—CAMP REACTIVATION—U. S. Eng., 606 Santa Fe Bldg., Galveston, partial reactivation of Old World War 2 Training Camp, **$1,000,000**; complete reactivation of Old World War 2, Camp Bowie, incl. troop housing, administration bldgs., etc. **$10,000,000**. CD 6/29.

▲ **Tex., Freeport**—SCHOOLS—Brazosport Independent School Dist., Freeport, voted bonds, Elementary School No. 1 addn. **$325,000**; Elementary School No. 2 addn. **$300,000**; Elementary School No. 3 addn. **$350,000**; Junior-Senior High School addn. **$400,000**; general school remodeling, **$310,000**; Intermediary School addn. **$300,000**. Emory S. White, M & M Bldg., Houston, archt. CD 11/5.

▲ **Tex., Odessa**—SCHOOLS—Ector County Independent School Dist., Odessa, high school addn. **$625,000**; elementary school, **$550,000**; elementary school, **$475,000**.

▲ † **Utah, Ogden**—WAREHOUSES—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., plans by Scott & Beecher, Dooly Bldg., Salt Lake City, four 200x1,400 ft. warehouses one 200x1,200 ft. warehouse, one 200x500 ft. warehouse at Utah General Depot. Total est. **$12,229,000**.

▲ **Vt., Burlington**—GENERATING PLANT—City, City Hall, generating plant, **$4,000,000**. Pierce Consulting Engr. Co., 183 Essex St., Boston, Mass., consult. engr.

▲ † **Wash., Bangor**—FACILITIES—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, addnl. facilities for storing ammunition at Bangor Annex of Naval Ordnance Depot, **$2,500,000**. DeWitt C. Griffin & Assocs., Central Bldg., Seattle, Zone 4, consult. engrs. CD 5/26/49.

▲ **W. Va., Charleston**—SCHOOLS—Kanawha Co. Bd. Educ., Charleston, voted bonds, Cedar Grove Junior High School, **$650,000**; Dunbar Senior High School, **$700,000**; Kanawha City High School, **$350,000**; Nitro Elementary-High School, **$1,225,000**; St. Albans Senior High School, **$900,000**; Spring Hill Junior High School, **$500,000**. CD 11/8.

**Wis., Neillsville**—INFIRMARY—Clark Co., Neillsville infirmary, **$600,000**.

**Wis., Sheboygan**—REPAIR SHOP—Shebyogan Co. Sheboygan, highway repair shop, **$500,000**. R. E. Fleischer, c/o owner, engr.

▲ **B. C., Fernie**—SCHOOL—Fernie School District Bd., Fernie, ratepayers approved school construction program, **$1,180,000**.

▲ **B. C., Vancouver**—HOSPITAL—Vancouver General Hospital, 10 Ave. and Heather St., plans by Townley & Matheson, 1376 Hornby St., 10 story-X-shaped, rein.-con., 500-bed hospital bldg., **$4,350,000**; plans by Sharp & Thompson, 1553 Robson St., rein.-con. pathology bldg. for University of B. C.'s medical school at Vancouver General Hospital, **$1,000,000**. CD 8/29/47.

▲ **Ont., Chatham**—HOSPITAL—Chatham Public General Hospital, Ron Trodgham, chn., Chatham, Ont. 4 story, bsmnt., hospital addn. with parallel service wing, 2 story, bsmnt., 80 ft. long joined by another wing. **$2,225,000**. Neergaard, Agnew & Craig, 135 Billor St. W., Toronto, consult .engrs. CD 3/7/46.

**Ont., Kincardine**—SCHOOL—Council, Mayor J. Chilvers, high school, **$450,000-$500,000**.

▲ **Ont., London**—HOME—City Council, Mayor Allan Rush, plans by T. C. McBride, City Hall, Aged People's Home, **$1,600,000**. CD 8/18/50.

## COMMERCIAL BUILDINGS

▲ **Ark., West Memphis** — HOUSING — Memphis View Homes, Inc., West Memphis, 274-unit housing. **$2,700,000**.

▲ **Ill., Arlington Heights**—HOME—Lutheran Home & Services for the Aged, Arlington Heights, Old People's Home. **$1,000,000**. Deleuw Cather & Co., 150 N. Wacker Dr., Chicago, Zone 6, consult. engrs.

▲ **Ill., Chicago**—HOTEL MODIFICATION—Pick Hotels Corp., 20 N. Wacker Dr., Zone 6, plans by Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, Congress Hotel modification to allow Congress St. Superhighway Egress, also internal changes, Peacock Alley, Shops, Glass Hat and Pompeiian Room. **$1,000,000**.

**Ind., Fort Benjamin Harrison**—HOUSING—U. S. Eng., Fifth Army, 1660 E. Hyde Park Blvd., Chicago, 15, Ill. construct, manage and finance 300 housing units.

**Mass., Boston**—COMMONS—Boston University, 688 Boylston St., plans by Cram & Ferguson, 248 Boylston St., commons bldg., Commonwealth Ave., **$750,000**.

▲ **Mass., Boston**—SHRINE and MONASTERY—St. Anthony Shrine, Province of Most Holy Name, Franciscan Fathers, 109 Arch St., plans by Bro. Cajetan Daumann OFM, 44 Whitehall St., New York, N. Y., shrine and monastery, Arch and Otis Sts., **$1,000,000**, Maurice A. Reidy, 101 Tremont St., consult. engr.

**Mass., Fall River**—HOME—Boys' Town of Massachusetts, Fred Amerchadian, exec. dir., 462 Boylston St., Boston, Boys' Town, **$500,000**.

**Mass., Springfield**—HOME—Boys' Town of Massachusetts, Fred Amerchadian, exec. dir., 462 Boylston St., Boston, Boys' Town, **$500,000**.

**Mass., West Boylston**—HOUSES—Henry Depatsy, 16 Woodland Heights, West Boylston, one hundred 1 story, bsmnt., 24x50 ft. houses. **$700,000**.

**Mich., Detroit**—CHURCH—Strathmoor Methodist Parish, Arien Hellwarth, chn. Bldg. Comn., 16081 Schoolcraft St., plans by Earl Confer, 14000 Strathmoor St., brick, stone church, incl. 2 addnl. units, Schoolcraft St. **$650,000**.

▲ **Mich., Flint**—HOUSING—Flint Co-operative Housing Assoc., Flint, 180 brick housing, **$1,900,000**.

▲ **Mo., St. Louis**—HOSPITAL—Bethesda General Hospital, 3649 Vista Ave., Zone 10, plans by Hugo K. Graf, 2835 Olive St., Zone 3, 200-bed brick, concrete, stone hospital. **$2,500,000-$3,000,000**. CD 1/2/48.

▲ **Pa., Reading**—APARTMENTS—Highwood Corp., c/o Roth & Fleisher, archts., 1420 Walnut St., Phila., apartments, Hampden Blvd. **$1,000,000**.

▲ **Tex., Port Arthur**—HOSPITAL—St. Marys Hospital, Port Arthur, plans by Golemon & Rolfe, 915 Woodrow St., Houston, 193-bed hospital. **$2,500,000**. CD 9/4.

▲ **Wash., Wenatchee**—HOUSES—Modern Home Builders, 3839 34 Ave. W., Seattle, 150 houses, **$1,500,000**.

▲ **Wis., South Milwaukee**—HOSPITAL—Trinity Memorial Hospital Corp., 1011 Elm St., 75-bed hospital **$1,000,000**.

## INDUSTRIAL BUILDINGS

**Del., Claymont**—PLANT—Claymont Steel Corp., Claymont, steel works plant addns. **$471,231**, George Smith, c/o owner, ch. engr.

▲ **Ind., Gary**—BLAST FURNACE—U. S. Steel Co., Lake Front, rebuild Blast Furnace No. 10. **$2,000,000**. A. J. Boynton & Co., 109 N. Wabash St., Chicago 2, Ill., consult. engrs. CD 2/6/45.

**Ind., Indianapolis**—PLANT—The Bookwalter Co., Inc., 1520 N. Capitol St., Indianapolis, printing plant. **$397,000**.

▲ **Kansas**—OIL PUMPING STATIONS—Sinclair Pipe Line Co., Box 460, Independence, Kan., crude oil pumping station, Caney, **$475,000**; crude pumping station, Humboldt, **$550,000**.

▲ **Kan., DeSota**—PLANT—Westvaco Chemical Div. Food Machinery & Chemical Corp., 405 Lexington Ave., New York, N. Y., nitro acid plant addn., Sunflower Ordnance Works **$2,200,000**.

▲ **La., Lake Charles**—REFINERY—Cities Service Co., Lake Charles, 25,000 bbl. daily increased expansion refinery, **$26,650,000**.

▲ **La., New Orleans**—PLANT—American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y., plant to recover nitrogen in Avondale. **$47,750,000**.

**Mich., Battle Creek**—PLANT—Eaton Manufacturing Co., 9771 French St., Detroit, heat treating plant. **$400,000**.

▲ **Mich., Cheboygan**—PULP MILL—Paper Corporation of America, J. J. Arnold, Pres. Cheboygan, pulp mill and ground wood mill, incl. mechanical imprvs. **$1,000,000**. CD 10/1/46.

▲ **Mich., Montague**—PLANT—Hooker Electro Chemical Co., Niagara Falls, N. Y., plant to mfg. chlorine and caustic soda. **$7,000,000**. CD 5/1, under Mich., Manistee.

▲ **Mich., White Pine**—POWER PLANT—White Pine Copper Co., subsidiary of Copper Range Co., 24 Federal St., Boston, Mass., power plant, Stone & Webster Engineering Corp., 90 Broad St., New York 4, N. Y., engrs.; mine, mill and smelter for production of metalic copper, Western Knapp Engineering Co., 760 Folsom St., San Francisco, Calif., engr. Total est. cost **$47,000,000**. Turner Constr. Co., 420 Lexington Ave., New York 17, N. Y. will be management and construction contractors when project goes ahead.,

**Missouri**—CRUDE PUMPING STATION—Sinclair Pipe Line Co., Box 460, Independence, Kan., crude pumping station, Gunn, **$400,000**.

▲ **Nev., Henderson**—PLANT—Hercules Powder Co., Delaware Trust bldg., Wilmington, Del. insecticide plant. **$3,000,000**.

▲ **O., Lima**—PLANT—Standard Oil Co., Midland Bldg., Cleveland, catalytic reforming unit, **$8,500,000**; crude coking unit addn. **$2,400,000**.

▲ **Pa., York**—PLANT—Caterpillar Tractor Co., 600 W. Washington St., East Peoria, Ill., bought 190 acre site for 360,000 sq. ft. truck parts plant. **$3,000,000**.

▲ **Tex., Baytown**—PLANTS—Humble Oil & Refining Co., 1216 Main St., Houston, aviation gasoline, **$4,071,000**; alkylate plant changing, **$177,845**. CD 2/19/48.

▲ **Tex., Beaumont**—PLANT—E. I. duPont de Nemours & Co., 2219 McKinney St., plant for plastics and chemicals, on 700 acre site between Texas Gulf Sulphur Plant and Neches River. **$100,000,000**.

▲ **Tex., Houston**—BUS SHOP, etc.—Houston Transit Co., 800 Texas St., bus stop repairing center, Approx. **$500,000**; bus storage, Approx. **$500,000**. CD 9/23/46.

**Tex., McCamey** — PLANT — Phillips Petroleum Co., Bartlesville, Okla., some gas-processing plant refinery imprvs. **$750,000**.

▲ **Tex., Matagorda**—PLANT—The Ohio Oil Co., City Natl. Bank Bldg., Houston, propane and natural gas plant, near here. **$4,108,414**.

▲ **Tex., Midland** — PLANT — Texas Gas Products Corp., Amarillo, aviation gasoline plant and facilities. **$4,052,000**.

▲ **Tex., Stratford**—PLANT—Phillips Petroleum Co., Bartlesville, Okla., natural gasoline plant. **$6,014,416**.

**Man., Winnipeg**—HEADQUARTERS—Westinghouse Co. (Canada) Ltd., 158 Portage Ave. E., plans by Northwood & Chivers, 406 Nanton Bldg., headquarters, incl. offices, service dept. and warehouse. Approx. **$500,000**.

## UNCLASSIFIED

**Ga., Hogansville**—NATURAL GAS SYSTEM—City, natural gas system, **$425,000**.

**Mass., East Boston**—BATHHOUSE, etc.—State, Dpt. P. Wks., 100 Nashua St., Boston, bath house, flood lights, ball fields, bleachers, overpass on Bennington St. to beach, chlorination plant, parking area, relocation of East Boston Yacht Club, **$500,000**.

**Missouri**—RURAL DISTRIBUTION LINES—Co-Mo. Electric Co-operative, Tipton, 175 mi. rural distr. lines, headquarters facilities, 3.5 mi. tie lines, Cooper Co. **$480,000**. Frank Horton & Co., Lamar, consult. engrs. CD 7/13/50.

**Missouri**—TRANSMISSION LINES—Northwest Electric Power Co-operative, Inc., Cameron, 600 mi. 69 KV power transmission lines, Henningson, Durham & Richardson, Inc., Standard Oil Bldg., Omaha, Neb., consult. engr.; 200 mi. 154 KV electric power lines. Frank Horton & Co., Lamar, consult. engrs. CD 9/18.

**Nebraska**—RURAL DISTRIBUTION LINES—Wheat Belt Electric Membership Assn., Sidney, 487 mi. rural distr. lines, Cheyenne, Deuel, Morrill and Garden Counties. **$600,000**. Flora Eng. Co., 1717 E. Colfax Ave., Denver, Colo., consult. engr.

**Texas**—GAS PIPE LINE—West Texas Gas Co., Lubbock, 33 mi. new gas pipe line, near Amarillo and Canyon, Potter and Randall Counties, **$475,000**; compressor addns. in area of Amarillo and Canyon, **$275,000**; opening trench, removing 25 mi. 16 in. gas pipe line, backfilling trench and reconditioning the pipe, near Amarillo, **$70,000**.

**Tex., McCamey**—GAS PIPE LINE—Phillips Petroleum Co., Bartlesville, Okla., construct gas pipe line from fields to gas plant near here. **$550,000**.

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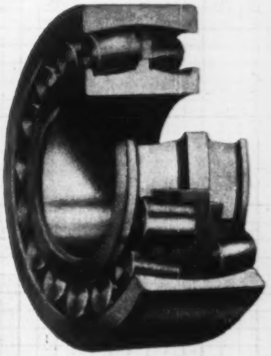

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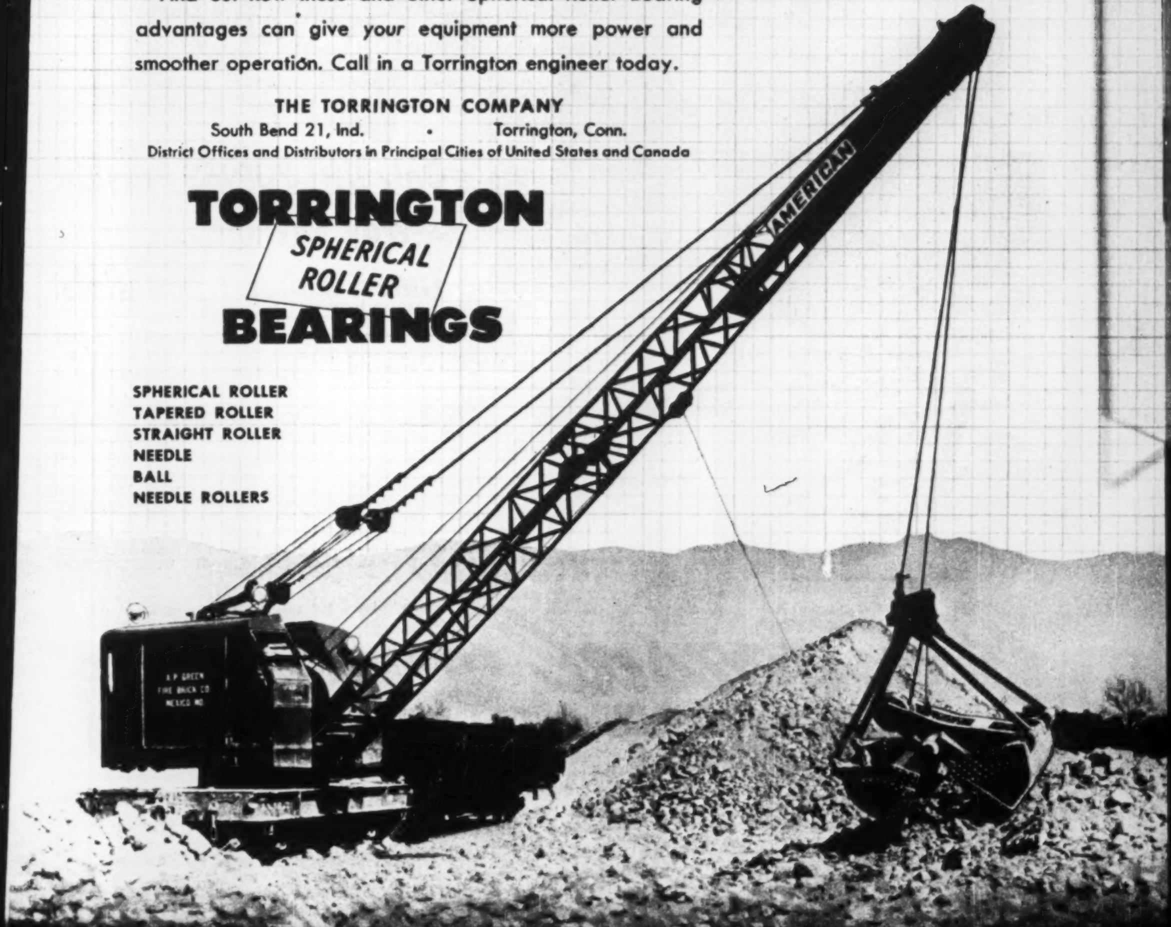

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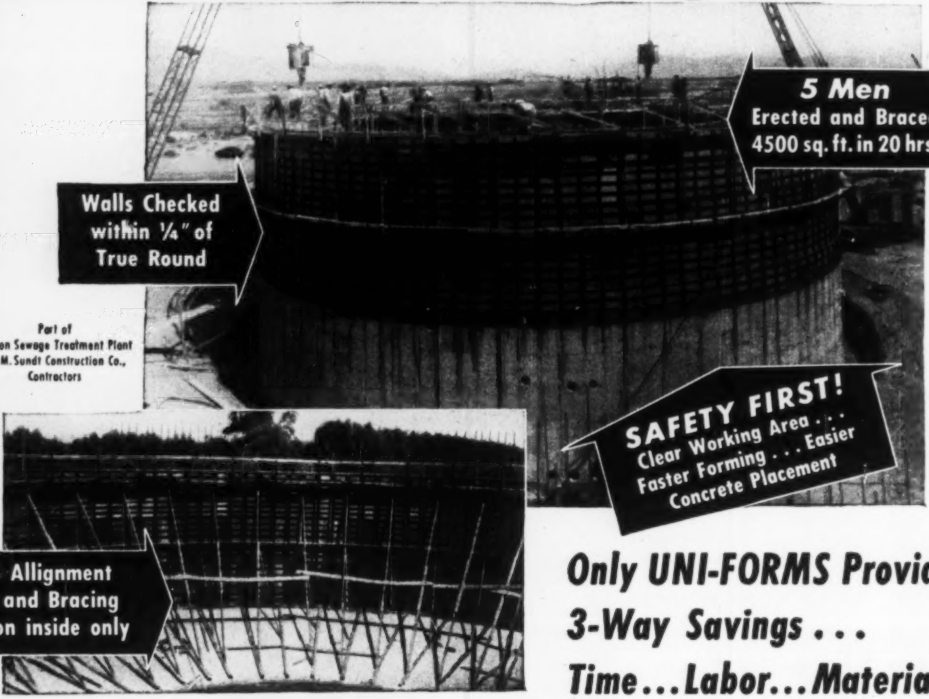
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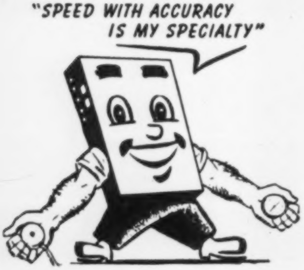
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# CONSTRUCTION REPORTS-Second Section

## NEW ENGLAND

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

**Westcott Constr. Co.,** 52 N. Washington St. North Attleboro, Mass., CA, **$937,900,** Contr. 1, Town Meadow Treatment Plant and E. Broadway Sewage Pumping Station, MILFORD, CONN. Town, Town Hall, Milford, Conn. Bids Nov. 5. CD 11/13, under LB.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Tornabene Bros. Co.,** 372 Langley Rd., Newton, Mass. LB **$1,129,488,** est. $1,000,000. M-201, Contr. 1 building for psychotic children, Metropolitan State HOSPITAL, WALTHAM, MASS. State, Dpt. Mental Health, 15 Ashburton Pl., Boston, Mass. Bids Dec. 7. CD 11/20.

▲ **Kaye Homes, Inc.,** c/c Harry Kaye, Bell Harbor, N. Y., Owner Builds, **$1,500,000,** 1000 frame, RESIDENCES, Near Westfield and Newfield Sts., MIDDLETOWN, CONN.

▲ **Green Manor Estates, Inc.,** c/o Samuel Swift, Manchester, Conn. Owner Builds, **$1,800,000,** 200 HOUSES south of May Rd. near Forbes St., EAST HARTFORD, CONN.

## MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

January 15, Maryland

STREETS AND ROADS

December 27, New York — January 2, Delaware

BIDS ASKED—BUILDINGS

▲ **Pa., Aliquippa**—HOUSING—B.A. 12/26—Beaver Co. Housing Auth., Beaver, housing, Proj. Pa 14-9, Linmar Terrace Ext. $1,154,681. Plans deposit $50. Ackley, Bradley, Patterson, Sewickley, Pa., archts. Former bids rejected, LB **$846,500.** CD 11/12, under LB.

▲ **Pa., West Mifflin**—SCHOOLS—B.A. 12/27—Bd. Educ. of West Mifflin, Terrace, 1 story brick Homeville Grade School, $523,320; 1 story bsmnt., brick Walnut Grove Grade School, $458,940; 1 story, brick, tile Edison Junior High School, $669,510. Plans deposit $15 each. Button & McLean, 119 E. Montgomery St., N. S., Pittsburgh, archts. CD 11/20/50, 11/17/50 and 2/24/50.

▲† **N. Y., Schenectady**—WAREHOUSES—B.A. 1/17—U. S. Eng., 80 Lafayette St., New York, Zone 13, warehouses and facilities at Schenectady General Depot. $10,456,000. Raymond & Rado, 101 Park Ave., New York, Zone 17, archts. CD 11/30.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Wm. M. Moore Building Co. & Lopier Constr. Co.,** 75 W. 190 St., New York, N. Y. LB **$6,434,900,** construct Welfare Island Bridge over east channel of East River connecting Welfare Island with Queens Boro. New York, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Dec. 12. CD 11/15.

† **Malan Plumbing & Heating Co.,** 25-09 42 Rd., Long Island City, N. Y. LB **$713,000.** tank farm and connecting facilities, NOY 28849, Spec. 30488, Phila. Naval Base, MECHANICSBURG, PA. Dpt. Navy, Pub. Wks. Office, Phila. Naval Base, Phila., Pa. Bids Nov. 13. (**Correction**—contractors address). CD 11/28, under LB.

▲ **Lewis & Bowman, Inc.,** Edwards Bldg., Golddsboro, N. C. LB **$2,994,600.** Rocky Gorge Dam on Patuxent River, near Laurel, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Dec. 7. CD 11/1.

### BUILDINGS

LOW BIDS AND CONTRACTS

**Supt. School Bldgs., Design & Constr.,** 49 Flatbush Ave. exten., Brooklyn 1, N. Y. rejected bids Nov. 9, SCHOOL, P. S. 35, Serpentine Rd. and Clove Rd., Richmond Boro, NEW YORK. LB **$713,700.** Will re-advertise. CD 11/20, under LB.

▲ **Joseph Weinstein, Inc.,** 66 Court St., Brooklyn 2, N. Y. LB **$1,287,000.** SCHOOL, P. S. 268, E. 53 St. and Clarkson Ave., BROOKLYN, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Dec. 4. CD 11/29.

**Maran Constr. Co., Inc.,** 1910 Arthur Ave., New York 57, N. Y., CA. **$998,000.** SCHOOL, P. S. 152 addn., Glenwood Rd. and E. 23 St., BROOKLYN, N. Y. Supt. School Bldgs. Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 13 CD 11/20, under LB.

**Henrietta Berfond,** 79 Brighton 11 St., Brooklyn, N. Y., Owner builds. Approx. **$720,000.** 23 two-family HOUSES, 1126 92 E. 52 St. and 14 two-family houses, 1139-77 E. 52 St., BROOKLYN, N. Y. Seelig & Finkelstein, 153 Pierpont St., Brooklyn, N. Y. archts.

▲ **T. G. K. Constr. Co., Inc.,** 55 W. 42 St., New York 18, N. Y., LB **$1,086,500.** SCHOOL, P. S. 215, Briar Pl., Brookhaven Ave., extending to Grassmere Terrace, FAR ROCKAWAY, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave., exten., Brooklyn 1, N. Y. Bids Dec. 6. CD 11/29

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. LB **$2,051,000.** Junior HIGH SCHOOL 168, vicinity 155 St. and 72 Ave., Queens Boro, FLUSHING, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Dec. 7. CD 11/29.

▲ **Colmar Constr. Co.,** 364 Gold St., Brooklyn 1, N. Y. LB **$1,159,000.** SCHOOL, P. S. 196, 71 Rd. and Grand Central Parkway, FOREST HILLS, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 30. CD 11/12.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. CA. **$1,843,000.** Junior HIGH SCHOOL 145, north side 34 Ave., to Northern Blvd. between 79 and 80 Sts., JACKSON HEIGHTS, N. Y. Bd. Educ., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 9. CD 11/20, under LB.

▲ **George F. Driscoll Co. & Mosher Constr. Corp.,** 41 E. 42 St., New York 17, N. Y., LB **$2,628,262,** Junior HIGH SCHOOL 71, Avenue B, E. 4 and E. 6 Sts., Manhattan Boro, NEW YORK, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 28.

▲ **Colmar Const. Co.,** 364 Gold St., Brooklyn 1, N. Y. LB **$1,115,364,** SCHOOL, P. S. 24, Independence Ave. between W. 235 and W. 236 Sts., extending westerly approx. 233 ft. from intersection of Independence Ave. and W. 235 St., NEW YORK, N. Y. Supt. School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Dec. 5. CD 11/15.

▲ **Caristo Constr. Corp.,** 26 Court St., Brooklyn 2, N. Y. CA. **$1,320,000,** SCHOOL, PS 112, 229 St. and Schieffelin Ave., Bronx Boro, NEW YORK, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn 1, N. Y. Bids Nov. 7. CD 11/20, under LB.

▲ **John T. Brady & Co.,** 606 W. 47 St., New York 19, N. Y. CA. **$1,486,000,** SCHOOL, P. S. 122, Kingsbridge Rd., between Heath and Bailey Aves., Bronx Boro, NEW YORK, N. Y. Supt. School Bldgs., Design & Constr. 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 5. CD 11/20, under LB.

**John Rosenblum, Inc.,** 1860 Broadway, New York 23, N. Y. CA. **$859,600.** SCHOOL, P. S. 114 addn., Beach 135 St. and Cranston Ave., Queens Boro, ROCKAWAY, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten. Brooklyn 1, N. Y. Bids Nov. 8. CD 11/20, under LB.

▲ **Birchwood Park Homes,** c/o Stanley H. Kelin, archt., 89-31, 161 St., Jamaica, N. Y., Owner Builds. **$1,000,000.** 86 HOUSES on 21 acres at Hendrickson and East Aves., VALLEY STREAM, N. Y.

▲ **Arthur Venneri Co.,** 700 North Ave. East, Westfield, N. J., CA, **$4,049,289,** 3 WAREHOUSES and utilities;

**Villa Constr. Co.,** 233 North Ave. West, Westfield, N. J. CA, **$282,790,** drainage and grading, clearing, grubbing and excavation at Raritan Arsenal, RARITAN, N. J. U. S. Eng., 80 Lafayette St., New York, 13, N. Y.

▲ **Morrow Bros., Inc.,** 2315 N. Charles St., Baltimore, Md. CA **$1,485,500.** 2 story, 65x149 ft., 63x205 ft. wing, 70x237 ft. wing, brick, concrete, steel Hereford Junior-Senior High SCHOOL, near Hereford, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. CD 12/5, under LB.

## SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

January 11, Alabama

STREETS AND ROADS

January 3, Louisiana — January 11, Alabama

▲ **Ky., Louisville** — B.A. 12/28 — Metropolitan Sewer Comn., 414 W. Jefferson St., Contr. 144, 2,376 ft. 12x8x19 ft., rein.-con. sewer, manholes, etc Approx $1,000,000. Plans deposit $50 L. S. Vance & Morris Forman, c/o owner, consult. engr. CD 4/22/48

BIDS ASKED—BUILDINGS

**Fla., Pensacola**—HOUSING—B.A. 1/8—Pensacola Housing Auth., Pensacola, Project FLA -6-5 120 housing units. $950,000. Plans deposit $150. Yonge & Hart, Blount Bldg., archts. Extended date. CD 11/19.

▲ **Miss., Jackson**—HOSPITAL—B.A. 1/10—St. Dominic's Hospital, c/o James T. Canizaro, archt., Deposit Guaranty Bank Bldg., hospital, $2,180,000. CD 10/10.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **L. O. Raborn,** 3528 Evangeline St., Baton Rouge, La., CA. **$1,037,000.** natural gas sys., LAURENS, S. C. City, Laurens, S. C. CD 6/27.

▲ **Fred Howland, Inc.,** 1451 N. W. 20 St., **Miami, Fla.,** LB, **$1,172,867,** Contract SW 16, water treatment plant on Galloway Road, MIAMI FLA. City, 3342 Dinnery Key Dr., Miami, Fla. Bids Dec. 6, CD 11/29.

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▲† **Fordice Constr. Co.**, Porter Bldg., Memphis, Tenn. LB **$766,400.** 80,000 squares articulated concrete mattress, Delta Co.;

**Warren Bros. Roads Co.**, First National Bank Bldg., Birmingham, Ala. LB **$600,600.** 70,000 squares articulated concrete mattress, Vidalia Co., LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Dec. 6. CD 11/14.

† **Wright Contg. Co.**, 504 25 Ave., Columbus, Ga., LB **$801,696,** imprv. levees Mississippi River Cates Landing, Tiptonville, TENNESSEE. U. S. Eng., P.O. Box 97, Memphis 1, Tenn. Bids Dec. 4.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. E. Burton Constr. Co.**, P. O. Box 571, South Boston, Va., CA. **$1,048,000.** Consolidated HIGH SCHOOL, HALIFAX, VA. Halifax Co., Halifax, Va., Bids Nov. 21. CD 12/6, under LB.

▲† **Chas. H. Tompkins Co.**, 907 16 St. N.W., Wash., D. C., CA, **$2,133,081,** chemical PLANT at Natrium Army Chemical Corps, NATRIUM, W. VA. U. S. Eng., 237 Fourth Ave., Huntington, W. Va. Bids Nov. 7. CD 11/13, under LB.

▲ **Thompson & Street Co.**, Pineville Rd., Charlotte, N. C. CA **$1,394,940,** HOUSING, Belvedere Homes, CHARLOTTE, N. C. Charlotte Housing Auth., 831 Seigle Ave., Charlotte, N. C. Bids Nov. 15. CD 11/21, under LB.

**Burford, Hall & Smith**, 140 Edgewood Ave., Atlanta, Ga., LB, **$969,310** BOILER PLANT alterations and new boiler installations, ATLANTA, GA. Bd. Regents University System of Georgia, 20 Ivy St. S.E., Atlanta, Ga. Bids Dec. 6. CD 11/2.

▲ **Dahlem Constr. Co.**, Joseph Dahlem, pres., Baxter Ave., Louisville 4, Ky. Owner Builds. **$1,250,000.** brick, concrete block, 105,000 sq. ft. DEPARTMENT STORE and SHOPPING CENTER, Shelby St. and Eastern Parkway, LOUISVILLE, KY. Awarded Dec. 5.

▲ **Kaighin & Hughes**, 125 S. Huron St., Toledo, O. CA **$1,300,000.** PLANT addns., LOUISVILLE, KY. Kentucky Synthetic Rubber Corp., c/o contractor.

## MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Ind., Gary**—HOUSING—B.A. 12/27—Gary Housing Auth., 400 Progress St., housing, Polk St. and 21 Ave., $2,000,000. Beine, Hall & Curran, 607 Broadway, archts. CD 8/15.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ILLINOIS**—State Div. Hys., Dpt. P. Wks., Centennial Bldg., Springfield,

**J. C. O'Connor & Sons, Inc.**, 2104 Miner St., Fort Wayne, Ind., CA **$1,473,655,** c.conc. 8.18 mi. U.S. 50, Clay and Richland Counties. Bids Nov. 30, awarded Dec. 7. CD 12/4, under LB.

▲ **ILLINOIS**—State Div. Hys. & Dpt. P. Wks., Centennial Bldg., Springfield,

**Great Lakes Dredge & Dock Co.**, 122 S. Michigan Ave., Chicago, 3, Ill., CA, **$1,858,436,** constr. substructure for highway bridge across Illinois River on U.S. 67 and Ill. 100, Cass and Schuyler Counties. Bids Nov. 30. CD 12/4, under LB.

▲ **City**, City Hall, Chicago, Ill., cancelled bids to have been opened Dec. 14, 6,450 ft. cofferdam will enclose the 61-acre filtration plant site near Navy Pier on north side to hold back water, CHICAGO, ILL. **$8,000,000.** Allotment for 5,342 tons of steel denied by Water Resources Div. of U. S. Dpt. Commerce. CD 12/5.

▲ **J. C. Tully Co.**, 33 N. La Salle St., Chicago 2, Ill., CA, **$1,789,612,** Harms Road Interceptor Sewer, Northbrook, Northfield to Sunset Ridge and Dundee Road, CHICAGO, ILL. Sanitary Dist. of Chicago, 919 S. Michigan Ave., Chicago 5, Ill. Bids Nov. 8, awarded Dec. 4. CD 11/21, under LB.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **DeBartolo Constr. Co.**, 216 Alexander Ave., Youngstown, O., CA. **$4,125,000,** 650,000 sq. ft. general WAREHOUSE, YOUNGSTOWN, O. Meridian Terminals, Inc., c/o contractor.

▲ **E. W. Schmeling & Son**, 1031 School St., Rockford, Ill., LB, **$1,000,000** HIGH SCHOOL ADDNS., LOVE PARK, ILL. School Dist. 122, Loves Park, Ill. Bids Nov. 15.

▲ **Darin & Armstrong, Inc.**, 2041 Fenkel St., Detroit, Mich. CA **$11,000,000.** 900x1,120 ft Wright Engine PLANT, incl. cyclone and 3,500 hp Wright turbo, R 3350-26W and R 3350-30W., FLINT, MICH. Chevrolet Motor Div. General Motors Corp., T. H. Keating, gen. mgr., 3044 W. Grand Blvd., Detroit 2, Mich. Argonaut Realty Div. General Motors Corp., General Motors Bldg., Detroit, Mich., engr. CD 10/3.

## WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

December 27, Iowa December 28, Kansas

STREETS AND ROADS

December 27, Iowa December 28, Kansas

BIDS ASKED—BUILDINGS

▲† **N. M., Los Alamos**—LABORATORY—B.A. 1/3—U. S. Atomic Energy Comn., Los Alamos, approx. 75,000 sq. ft. rein.-con., structural steel, metal siding laboratory bldg., outside grading, paving, and utility sys., Inv. 291-52-29. $2,500,000-$3,000,000. Plans deposit $50. Ralph M. Parsons Co., 617 S. Olive St., Los Angeles, Calif., archt. CD 11/9.

▲† **Tex., Texarkana**—WAREHOUSES—B.A. 1/3—U. S. Eng., Box 61, Tulsa 2, Okla., 2 warehouses, necessary facilities, Inv. No. ENG 34-066-52-17. $2,750,000. Extended date. CD 11/21.

▲ **Tex., Beaumont**—HOUSING—B.A. 1/16—Beaumont Housing Auth., Beaumont, 35 bldgs. for total 200 low cost rental housing units. $2,000,000. Plans deposit $50. Stone & Pitts, 1872 Calder St., archts. CD 11/7.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Weymouth Constr. Co.**, 2174 Person Ave., Memphis, Tenn., LB, **$1,208,262,** levee imprvs. in Mississippi River in Helena, ARKANSAS. U. S. Eng., P. O. Box 97, Memphis, 1, Tenn.

▲† **NORTH DAKOTA**—U. S. Eng., P. O. Box 300, Bismarck.

**Massman Constr. Co.**, 20 W. 9 St.; and **Kansas City Bridge Co.**, 926 Broadway, both Kansas City, Mo., CA. **$1,915,892,** substructure for Sanish Bridge crossing Missouri River, Inv. 52-10, Mountrail and McKenzie Counties. Bids Sept. 21. CD 10/3, under LB.

▲ † **Barfield Constr. Co.**, Amarillo, Tex. LB **$1,469,699,** est. $2,490,856. 134,000 bbl. aircraft hydrant-type fueling sys., Inv. 52-16, Smoky Hill Air Force Base, SALINA, KAN. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Dec. 7. CD 11/13.

▲ **TEXAS**—State Hy. Comn., Austin,

**W. R. Boyd, Inc.**, Cushing, Tex., LB. **$77,775,** est. $60,000. grading, structures, recondition flexible base and asph. pavement 4.85 mi. Hy. US 96, Proj. C65-5-32, Hardin Co.;

**Public Constr. Co.**, P.O. Box 380, Denton, Tex., LB **$259,180,** est. $180,000. wid'n and hot mix b. conc. resurf. 10.225 mi. Hy. U.S. 81, Proj. C 14-7-22, Hill Co.;

**The Jarbet Co., Inc.**, 903 Basse Rd., San Antonio, Tex., LB. **$466,338,** est. $200,000. grading, structures, flexible base and asphaltic paving 16.845 mi. Hy. SH 295, Proj. F 903 (9) and (10), Lavaca Co.;

**R. W. McKinney**, Nacogdoches, Tex., LB **$104,116,** est. $75,000. wid'n. and strengthen existing base and 2 course surf. tr. 6.105 mi. Hy. SH 11 and 34, Proj. 83-1-6, Hunt Co.;

**Spencer Constr. Co. Inc.**, P.O. Box 487, Carrollton, Tex., LB **$391,837,** est. $200,000. grading, structures, flexible base, 3 course surf. tr. 6.148 mi. Hy. U.S. 180, Proj. F 382 (4), Palo Pinto Co.;

**Cage Bros.**, 506 Travis Bldg., San Antonio, Tex., LB **$197,463,** est. $200,000. grading, structures 12.919 mi. Hy. S.H. 16, Proj. S 1517 (1), Eastland Co.;

**Dew Constr Co. Inc.**, Tyler, Tex., LB **$93,678.** est. $75,000. grading, structures, base, surf. and bridge 5.822 mi. Hy. FM 130 and 1334, Proj. S 1738 (1), Cass and Marion Counties;

**Joe Davidson**, Terrell, Tex., LB **$76,480,** est. $60,000. grading, structures, flexible base and asphaltic pavement 1.32 mi. Hy. FM 1654, Proj. S 919 (6), Van Zandt Co.;

**Moore Bros. Constr. Co.**, Lufkin, Tex., LB **$64,000,** est. $60,000. grading, structures, base and surf. 5.097 mi. Hy. FM 241, Proj. S 1629 (1), Cherokee Co.;

**Hugh McMillan**, P.O. Box 1227, El Paso, Tex., LB **$75,645,** est. $60,000. seal coat 73.032 mi. Hy. U.S. 90, Proj. C 20-1-7, etc., Culberson, Jeff Davis and Presidio Counties;

**Tecon Constr. Co. Inc.**, 1201 Main St., Dallas, Tex., LB **$1,186,034,** roadbed tr., c. conc. pavement, flexible base shoulders 7.854 mi. Hy. U.S. 67, Proj. FI 800 (7), Hunt and Hopkins Counties. Bids Dec. 11. CD 11/26 and 11/28.

▲ **River Construction Co.**, c/o owner, CA. **$3,350,000,** 93.6 mi. 20, 24, 26 in. welded joint gas lines in areas of Houston, Orange, Beaumont; CA. Approx **$3,975,000,** laying 86.1 mi. 30 in. welded joint gas pipe line between Refugio and Wharton, TEXAS. United Gas Pipe Line Co., 1525 Fairfield Ave., Shreveport, La. CD 10/3/50.

### BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Fisher Constr. Co.**, 4711 Greeley St., Houston, Tex., CA **$1,179,000.** masonry LAW SCHOOL, AUSTIN, TEX. University of Texas, c/o Office of Business & Finance, University Admin. Bldg., Austin, Tex., Bids Dec. 5. CD 12/11, under LB.

▲ **Hudson Engineering Corp.**, M & M Bldg., Houston, Tex., LB **$2,500,000.** Gas Extraction REFINERY PLANT unit; LB Approx. **$750,000** gas processing facilities units, MIDLAND, TEX. Magnolia Petroleum Co. and Associated Companies, Magnolia Bldg., Dallas, Tex.

▲† **A. S. Horner Constr. Co.**, 118 S. Pecos St., Denver, Colo., CA, **$2,324,224,** constr. Alcova POWER PLANT and appurtenant works, Kendrick Proj., downstream from Alcova Dam, approx. 30 mi. southwest of Casper, Spec. DC 3564, WYOMING. Bureau Reclamation, Dpt. Interior, Casper, Wyo. Bids Nov. 28. CD 12/3, under LB.

## FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

STREETS AND ROADS

January 2, California

▲† **Ariz., Goodyear**—BARRACKS, etc.—B.A. 1/8—Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. barracks bldg. and facilities, Litchfield Park, Spec. 30847, $1,000,000. Plans deposit $50. Bids 9/14 rejected. CD 9/25, under LB.

BIDS ASKED—BUILDINGS

▲ **Wash., Parkland** — SCHOOLS — B.A. 1/3 — Franklin Pierce School Dist. 402, Parkland, Wash., 12 one story rein.-con. high school bldgs. $1,500,000. Plans deposit $50. Lea, Pearson & Richards, 729 Tacoma Bldg., Tacoma, engrs. CD 10/4.

▲ **Wash., Seattle**—SCHOOL—B.A. 1/3—South Central School Dist. 406, 131812 51 Ave. S., 1 story, steel high school. $1,000,000. R. H. Burkhard, 2120 S.W. 152 St., archt. CD 11/3/48.

### HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **M. A. Pithoud**, Route 5, Box 248, Vancouver, Wash., LB, **$1,745,130,** 230 kv double-circuit steel tower transmission line on Skagit Project, SEATTLE, WASH. City, County-City Bldg., Seattle, 4, Wash. Bids Dec. 5. CD 11/20.

**CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

**Griffith Co.**, 1060 S. Broadway, Los Angeles, Calif., CA, **$817,166,** grading 5.5 mi. etc. between McFarland and Dealno Underpass, Kern Co. Bids Nov. 21. CD 12/3, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

**Frederickson & Watson Constr. Co. and M & K Corp.**, 873 81 Ave., Oakland, Calif., LB, **$1,260,449,** construct 1.8 mi. road between 0.9 mi. north of Rt. 68 and 0.2 mi. north of Trimble Rd., Santa Clara Co. Bids Dec. 5. CD 11/13.

▲† **J. A. McNeil Co., Inc.**, 3115 W. Mission Rd., Alhambra, Calif., CA, **$2,741,500,** aerodynamic ballistic track system, Spec. 32551; CA, **$783,390,** Spec. 32550, INYOKERN, CALIF. Dpt. Navy, Naval Ordnance Test Station, Inyokern, Calif. Bids Nov. 20. CD 11/30, under LB.

▲ **Rothschild, Raffin & Wierick**, 274 Brannan St., San Francisco, and Pacific Bridge Co., 333 Kearny St., San Francisco, LB, **$1,064,570,** Lake Merced Pumping Station, WD 588, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids Dec. 4. CD 10/30.

### BUILDINGS

LOW BIDS AND CONTRACTS

† **Sound Constr. & Eng. Co.**, 1300 Aloha St., Seattle, Wash., LB, **$925,813,** 108,000 sq. ft., rein.-con. WAREHOUSE, 20,000 sq. ft. structure for covered

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storage, 1,500 sq. ft. storage structure at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Richland, Wash. Bids Dec. 5. CD 11/28.

▲† **Barry J. Richards,** Box 733, Sherman Oaks, Calif., LB, **$1,198,000,** DORMITORY facilities at Station, NOY 71188, Spec. 32742, INYOKERN, CALIF. Naval Ordnance Test Station, Inyorken, Calif. Bids Dec. 4. CD 11/20.

▲ **Lakewood Park Constr. Co.,** 5327 Lakewood Blvd., Long Beach, Calif., CA, Approx. **$2,262,400,** 262 frame, stucco DWELLINGS Del Amo Blvd., Eckelson, Hardwick and Silva Sts., NORTH LONG BEACH, CALIF. Lakewood Mutual Homes No. 5, 5327 Lakewood Blvd., North Long Beach, Calif. Paul J. Duncan, 13310 Moor-Park St., Sherman Oaks, Calif., archt.

▲ **Lakewood Park Constr. Co.,** 5327 Lakewood Blvd., Long Beach, Calif., CA, Approx. **$1,761,600,** 200 frame, stucco DWELLINGS, Candlewood St., Downey Ave., etc., NORTH LONG BEACH, CALIF. Lakewood Park Mutual Homes No. 4, North Long Beach, Calif. Paul J. Duncan, 13310 Moorpark St., Sherman Oaks, Calif., archt.

▲ **Bauer Constr. Co.,** 309 S. W. 6 Ave., Portland, Ore., CA, **$4,488,900,** construct, manage and finance 500 HOUSING units at Presidio of San Francisco, Serv. 2121-80004 Army, SAN FRANCISCO, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Nov. 6, awarded Dec. 6. CD 11/13, under LB.

**Buttress & McClellan,** San Jose, Calif., CA, **$800,000** Machine Tools PLANT, N. Seventh and Commercial Sts., SAN JOSE, CALIF. Moore Industrial Co., 549 University Ave., Los Gatos, Calif. Gifford Sobey, San Jose, archts. Awarded Dec. 6. CD 11/27.

## ALASKA

### BUILDINGS

#### LOW BIDS AND CONTRACTS

▲† **J. B. Warrack Co.,** Securities Bldg., Seattle 1, Wash., CA. **$1,131,000.** 92x740 ft., steel CAR and COACH SHOP, ANCHORAGE, ALASKA. The Alaska R. R., Dpt. Interior, Anchorage, Alaska. Bids Oct. 4. CD 10/10, under LB.

## CANADA

#### BIDS ASKED—BUILDINGS

▲ **Ont., Downsview (Toronto)**—LABORATORIES—B.A. 1/3—Defense Constr. Ltd., 441 Queen's Quay W., Toronto. Defense Research Medical Laboratories, main bldg. 2 story 50x370 ft., with wing 40x100 ft. and 60x50 ft., rein-con., brick animal conlony bldg. $1,500,000. Plans deposit $100. R. P. Opie; c/o owenr, engr. G. S. Adamson, 906 Yonge St., Toronto, archt. CD 9/20.

▲ **Newfoundland, Corner Brook**—MILL EXPANSION—Bids Asked—Bowater Newfoundland Pulp & Paper Mills Ltd., Corner Brook, mill bldg., expansion, office bldgs., wing to company hotel, electric generating plant, concrete mixing plant. $10,000,000. C. J. Jeffreys, 1115 Sherbrooke St. W., Montreal, Que., and surveyer, Nenninger & Chenevert, 1440 St. Catherine St. W., Montreal, Que., engrs. CD 11/19.

▲ **Que., Ville St. Laurent**—APARTMENT DEVELOPMENT—Bids Asked—Alvin Enterprises Ltd., 1390 Sherbrooke St. W., Montreal, 84 buildings in apartment development 504 units, all 3 story, with bsmnt. Approx. $1,000,000. R. Fisher, 1499 Bleury St., Montreal, archt.

### HEAVY CONSTRUCTION

#### LOW BIDS AND CONTRACTS

**SASKATCHEWAN**—Province of Saskatchewan, Parliament Bldg., Regina,

**W. C. Wells Constr. Co. Ltd.,** Regina, Sask., **CA., $905,000** gravel base course and bit. 31.2 mi. from Oakshela to Sintaluta. Awarded Nov. 30. CD 10/1/43.

### BUILDINGS

#### LOW BIDS AND CONTRACTS

▲ City, Alan J. Rush, mayor, London, Ont., rejected bids May 2. 6 story, 46x124 ft. HOSPITAL WING, LONDON, ONT. LB, **$2,427,000** CD 7/3, under LB.

▲ **Anglin-Norcross Quebec Ltd.,** 892 Sherbrooke St. W., Montreal, Que., CA, Approx. **$13,000,000,** General HOSPITAL, MONTREAL, QUE. Montreal General Hospital, Pine Ave. W. and Cote des Neiges Rd. and 66 Dorchester St., Montreal, Que. Bids Nov. 21. CD 11/15.

▲ **Edmour Tremblay,** 1 Moreau St., St. Joseph D-Alma, Que., CA, Approx. **$1,500,000,** 4 story, bsmnt., 50x135 ft., rein.-con., brick HOSPITAL, with 54x80 ft. wing, ST. JOSEPH D'ALMA, QUE. Hospital of Misericorde of Jesus, Roberval, Que. CD 10/26.

## LATIN AMERICA

#### BIDS ASKED—BUILDINGS

▲ **Mexico, Monterrey**—DWELLINGS, etc.—Bids Asked—Hojalata Y Lamina, c/o Roberto Sada, Monterrey, Type 1, 275 dwellings, $2,200,000. Type 2, 325 dwellings, $2,600,000; schools, $325,000; public shopping bldg. units, $300,000. CD 11/8.

▲ **Mexico, Monterrey**—DWELLINGS etc.—Bids Asked—Cuauhtemoc Brewery, c/o R. Garza Sada, Monterrey, 300 dwellings, west side. $2,400,000. 200 dwellings, east of here, $2,000,000; shopping bldg. center, $350,000; school and playground. $400,000. CD 11/7.

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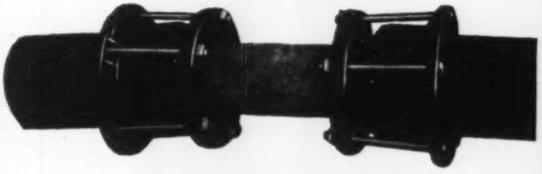

Shown above: 6 in. Trans. (150 Barrel) x 4 in. Trans. (150 Barrel) x 4 in. Trans. (150 M. E.) x 6 in. C. I.

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# OFFICIAL PROPOSALS

***RATE:*** *THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.25 PER LINE (OR FRACTION) PER INSERTION.*

***CLOSING DATE:*** *FRIDAY 10:30 A. M. FOR THE ISSUE DATED THE FOLLOWING THURSDAY.*

***SEND COPY TO:*** *OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 36, N. Y.*

Bids: January 29, 1952

## Construction of Intercepting Sewer

NOTICE OF LETTING
CITY OF WILMINGTON, DELAWARE

Sealed proposals for furnishing materials and labor to construct Intercepting Sewer C, Contract No. 5 of the City of Wilmington's Sewage Treatment Program, will be received from qualified bidders by the Board of Directors of the Street and Sewer Department, Room 251, City Hall, until 2:00 P.M., Eastern Standard Time, January 29, 1952, at which time and place they will be publicly opened and read aloud.

Each proposal shall be submitted in a sealed envelope, which shall be marked to clearly indicate its contents. If the proposal is forwarded by mail, it shall be enclosed in an additional envelope addressed to the Board of Directors of the Street and Sewer Department, City of Wilmington, Delaware. If submitted other than by mail, it shall be delivered to Room 260, City Hall.

The work embraces constructing approximately 9500 linear feet of 60" to 78" diameter pipe sewers; constructing approximately 1600 linear feet of 18" diameter pipe sewers; constructing two siphone chambers, one on each bank of the Christina River; improvements to the existing masonry and earth channel of Shipley Run; and other miscellaneous and appurtenant work. The Board of Directors have received a CMP allotment.

Each bid shall be accompanied by a certified check in the amount of two (2) percent of the proposal, made payable to the Board of Directors, Street and Sewer Department, City of Wilmington, Delaware.

Drawings and specifications may be obtained from the office of the Board of Directors of the Street and Sewer Department of the City of Wilmington, Room 260, City Hall, or from the office of Whitman, Requardt and Associates, 1304 St. Paul Street, Baltimore 2, Maryland, upon deposit of Twenty-five Dollars ($25.00) for each set of drawings and specifications, which deposit will be refunded upon return of the plans and specifications in good condition.

The Board of Directors of the Street and Sewer Department reserves the right to reject any or all bids and to accept the bid, which in its opinion best serves the interests of the City.

By order of
Board of Directors of the Street and
Sewer Department
Vaughan Clavey—President
Attested
James J. Livingstone, Secretary

---

Bids: January 17, 1952

## Sub-Structure Halifax-Dartmouth Bridge

CONTRACT NO. 2

Sealed tenders addressed to the undersigned and marked as instructed, will be received at the office of the undersigned until 12 o'clock noon, Atlantic Standard Time, January 17th, 1952, for the construction of the sub-structure of the Halifax-Dartmouth Bridge in the Province of Nova Scotia, in accordance with the plans and specifications available at the office of Dr. P. L. Pratley, 909 Drummond Building, Montreal, Quebec, and at the office of C. A. Fowler and Company, 422 Capitol Building, Halifax, Nova Scotia, on or after November 29th, 1951. These plans may be borrowed from the Engineer by recognized General Contractors on deposit of certified cheque for $100.00 guaranteeing the return of the plans. This deposit will be returned to all bidders on return of the plans to the office from which they were borrowed, and will be forfeited if the plans are lost, destroyed or damaged.

A certified cheque for ten percent of the amount of the tender made payable to the order of the Halifax-Dartmouth Bridge Commission, or alternatives as described in the "Instructions to Bidders" must accompany each bid, and tenders must be on the forms provided. The above deposit will be returned in the case of non-acceptance and be forfeited in case the successful tenderer does not proceed to the satisfactory completion of the contract.

A signed copy of the "Instructions to Bidders" must accompany each bid.

Tenders will only be considered from established General Contractors.

Tenderers must state names and quotations of sub-contractors. The lowest, or any tender, not necessarily accepted.

Halifax-Dartmouth Bridge Commission,
H. J. Egan, Secretary,
Halifax, Nova Scotia.
140 Roy Building

---

Bids: January 4, 1952

## Wire Fence & Bumper Logs For Parking Lots A and C

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
WIRE FENCE AND BUMPER LOGS
FOR PARKING LOTS A AND C
CONTRACT LT-120.023

Sealed proposals for relocating bumper logs and furnishing and installing woven wire fence for parking lots A and C adjacent to the ramp connections to the Port Authority Bus Terminal from the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M. Friday, Jan. 4, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.*

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 20, 1951

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Bids: January 2, 1952

## Electrical Work Water Treatment Plant City of Long Beach, N. Y

1. Sealed Proposals for the construction of the herein described Contract for the Electrical Work of the Water Treatment Plant in the City of Long Beach, New York, will be received by the City Manager until 8 P.M., E.S.T., January 2, 1952, in City Hall, Long Beach, New York, and there publicly opened and read immediately thereafter.

2 The work will consist of providing all labor, materials, equipment and incidentals required for the construction of the following:

CONTRACT III—ELECTRICAL WORK required for Water Treatment Plant.

3. Plans, Specifications, bidding and contract documents may be examined at the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York 7, N. Y., and at the Office of the City Engineer at City Hall, Long Beach, N. Y., and obtained from the latter upon the following deposit per set:

CONTRACT III—ELECTRICAL WORK $10.00

Full refund will be made to actual bidders for return of one (1) set, in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit.

4. All proposals must be on the form contained in the specification as furnished by the City.

5. All bids must be accompanied by a Certified Check or Acceptable Bidder's Bond in the amount of Ten (10%) percent of the amount of the Bid, made payable to the City Treasurer, City of Long Beach. Said checks will be returned to all, except the three (3) lowest bidders, not later than ten (10) days after opening of bids.

6. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.

7. No bidder may withdraw his bid within thirty (30) days after closfng date for receipt of bids.

8. The City Council reserves the right to reject any or all bids and to waive any informality in the Bid, and to accept that proposal which in its judgment best serves the interests of the City.

CITY OF LONG BEACH, N. Y.
by: MAURICE J. FLEISCHMAN
City Manager
Dated: December 12, 1951

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Bids: January 18, 1952

## Public Grain Elevator

NOTE—DATE OF OPENING OF BIDS CHANGED FROM 12/18/51 to 1/18/52

Sealed bids will be received by the Board of Commissioners of the Port of New Orleans at their office, Room 204, No. 2 Canal Street, until 2:00 P.M., January 18, 1952, and then publicly opened for construction of Public Grain Elevator either under two separate contracts for Items A and B or under one contract for Item C.

ITEM A—Foundations, dumper pits, etc.
ITEM B—Structures and appurtenances complete with mechanical, electrical and all other installations.
ITEM C—Complete project.

A deposit of five per cent of the sum bid, by certified. check only, certified by an accredited officer of an accredited bank, is required with each bid. A deposit for a bid on Item C will be applicable to separate bids on either or both of the other items, or the bidder may furnish the deposit called for with each separate bid submitted.

A surety bond, by an acceptable surety company, in the amount of 100% of the sum bid is required with notarial contract.

Specifications, plans and bid forms are on file in the Board's office mentioned above. Complete sets will be furnished to prospective bidders on deposit of $50.00 for each set of Item A and $150.00 for each set of Item B or Item C, which deposit(s) will be refunded to depositors who submit bids with plans. In case of depositor not submitting a bid, $25.00 of bidder's deposit for Item A or $100 of bidder's deposit for Item B or Item C, will be refunded upon return of full sets in good condition within thirty days after opening bids.

The right is reserved to accept or reject any or all bids and to waive informalities, and to award contract as the Board may determine to be for its best interests.

E. H. Lockenberg,
General Manager
Requisition No. SD-7582
December 10, 17, 1951

# SEARCHLIGHT SECTION

**This index is published as a convenience to the readers. Every care is taken to make it accurate, but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.**

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## OFFICIAL PROPOSALS

Bids: December 27, 1951

### *Soil Explorations in Oneida County*

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., eastern standard time, on December 27, 1951 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES OF THE NEW YORK STATE THRUWAY, MOHAWK SECTION, SUBDIVISION NOS. 5 and 6, VERONA TO WESTMORELAND, ONEIDA COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-23.

Maps, plans and specifications may be examined and obtained at the Bureau of Contracts and Accounts on the 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., and also in the office of Lacy Ketchum, District Engineer, 109 North Genesee Street, Utica 1, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $12,690.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $635.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

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Bids: January 4, 1951

### *Identification Signs*

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-140.005

Sealed proposals for the construction of Identification Signs at Port Newark and Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:15 A.M. Friday, Jan. 4, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, December 20, 1951

## U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3613) will be received by Bureau of Reclamation, Ephrata, Washington, until February 5, 1952, and then publicly opened for furnishing labor and materials and performing all work for the construction of Saddle Gap and PE 17 Pumping Plants, Area P-1; and Laterals, Area P-13, Columbia Basin Project, Washington. The work is situated near Othello, Washington. Principal items are approximately: Excavation 15,000 cu. yds.; concrete 760 cu. yds.; furnishing and placing reinforcement 95,000 lbs.; furnishing and laying concrete pipe 4,600 lin. ft.; furnishing and erecting superstructures—lump sum; installing equipment 133,000 lbs.; furnishing and installing electrical wire and cable 13,400 lin. ft.; and other work. Time allowed for completion will be 365 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

## OFFICIAL PROPOSALS

Bids: December 27, 1951

### *Soil Explorations in Herkimer & Montgomery Counties*

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., eastern standard time, on December 27, 1951 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES OF THE NEW YORK STATE THRUWAY, MOHAWK SECTION, SUBDIVISION No. 10-B, ONE MILE EAST OF E. SCHUYLER TO FORT HERKIMER, HERKIMER COUNTY; AND SUBDIVISION No. 12-B, INDIAN CASTLE TO OPPOSITE CAROGA CREEK HERKIMER AND MONTGOMERY COUNTIES, WHICH CONSTITUTES CONTRACT No. SPEC. SM-24.

Maps, plans and specifications may be examined and obtained at the Bureau of Contracts and Accounts on the 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., and also in the office of Lacy Ketchum, District Engineer, 109 North Genesee Street, Utica 1, New York.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $20,498.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1025.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids. B. D. TALLAMY
Superintendent of Public Works

## U. S. Government

Department of Commerce, Bureau of Public Roads, December 11, 1951. SEALED BIDS will be received at the office of the Division Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., E.S.T., JANUARY 15, 1952, for Project 1A3, Baltmore-Washington Parkway, Prince Georges County, Maryland. Bridge over Landover Road. The approximate quantities of the more important items are as follows: 13,300 cu. yd. Excavation, 2,940 cu. yd. Cement Concrete, 415,000 lb. Reinforcing Steel, and 20,000 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. H. J. Spelman, Division Engineer.

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UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3610) will be received by Bureau of Reclamation, Fort Collins, Colorado, until January 15, 1952, and then publicly opened for furnishing labor and materials and performing all work for the installation of equipment and appurtenances and construction of structures and transmission line for Beaver Creek substation, Colorado-Big Thompson Project, Colorado. The work is situated three-fourths of a mile east of Brush, Colorado. Principal items are approximately: Excavation 3,300 cu. yds.; furnish and erect 52,300 lbs. steel structures, furnish materials for and construct 4,200 lin. ft. of 2,400 volt power transmission line; and other work. Time allowed for completion will be 180 days. For particulars, address Bureau of Reclamation, Fort Collins, Colorado; or Building 53, Denver Federal Center, Denver, Colorado.

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*NEW ADVERTISEMENTS received by December 14th at the New York City Office, 330 W. 42 St., N. Y. 36, will appear in Dec. 27th issue subject to space available*

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P-2708, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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CHIEF ESTIMATOR for building construction, qualified to take complete charge estimating department for A-1 N. Y. General Contractor. Very attractive salary if qualified. Permanent position. P-2741, Engineering News-Record.

CHIEF MECHANICAL Engineer Wanted. Must be experienced in handling design and production of all mechanical requirements of large commercial architect office. Located in Pacific Northwest. Salary open. Write P-2742, Engineering News-Record.

DESIGNERS FOR highway and bridge work in Rhode Island. Send experience to P. O. Box 814, Providence, Rhode Island.

ENGINEER EXPERIENCED in general municipal work including construction of water and sewer lines, pavements, and drainage facilities, maintenance of streets, public grounds and buildings, to supervise operation of engineering and service departments of rapidly growing residential community in Metropolitan Cleveland. Good pay with opportunity for increase. Submit full resume, stating experience, education, age, availability and salary expected. P-2746, Engineering News-Record.

ENGINEERS ON Design of water and sewage treatment projects in consulting engineers office. Northwestern Ohio. P-2660, Engineering News-Record.

**(Continued on page 86)**

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P-2724, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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330 W. 42 St., New York 18, N. Y.

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Prominent mid-western manufacturer of construction equipment has a position available as sales manager for one of its product lines consisting of medium to heavy roadbuilding and excavating machinery. If you have had sales experience in this field . . . can show a successful record demonstrating the executive ability necessary to efficiently manage a sales office and field sales force . . . are able to administer and sales promote a dealer organization of over 200 dealers to a continuing high level of activity in the never ending search for business . . . and are looking for a challenging opportunity, please get in touch with us.

**P-2462,** Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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# PIPING & MECHANICAL SUPERINTENDENTS

Installing mechanical equipment and piping for Water and Sewage Plants. Equivalent experience acceptable.

Our expanding growth offers excellent opportunities in a field that has permanence and stability.

**MUNICIPAL SERVICE COMPANY**
**908 GRAND AVENUE**
**KANSAS CITY, MISSOURI**

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# EXPERIENCED CONSTRUCTION EXECUTIVE

**Were you brought up in the construction field?**

**Have you experienced broad field construction work?**

**Are you familiar with all phases of office engineering?**

**Are you able to prepare estimates for bids? Are you accustomed to preparing and letting sub-contracts?**

**Are you familiar with labor relations work, Union customs and habits?**

**Are you familiar with all phases of building construction work, progress scheduling, doing field construction work on a large scale?**

**If you feel qualified to answer the above questions in the affirmative, and are interested in a position in the midwest, address your reply, giving complete data of education, experience, and salary expected to Box**

**P-2709,** Engineering News-Record
330 W. 42 St., New York 18, N. Y.

**Your reply will be held in strict confidence. Our present personnel are acquainted with this ad.**

---

***WANTED . . .***

# CONSTRUCTION SUPERINTENDENT

***Assignment-Northeast Canada***
***Salary—from $10,000***

Contract Requirements:—Minimum of 20 years in construction field. Previous foreign construction experience preferred. Engineering background helpful. Must be a good organizer able to layout work for Canadian labor.

Write and furnish full information regarding education, training, chronological details of experience. Age, salary expected, references. Small photograph and availability.

No applications considered without foregoing information. All replies will be considered strictly confidential.

**P-2648,** Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

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# ENGINEERS

**for design and construction of several major municipal projects. Starting Salaries: $3707, $4514, $5334, $6143, $7036 per year. Write**

**DETROIT CIVIL SERVICE COMMISSION**
**735 Randolph St. Detroit 26, Mich.**

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## *WANTED*
# MINING ENGINEER

**Reside abroad part of year — must be qualified organize mining operations, transportation, etc., metallic ore mines—reply box**

**P-2707,** Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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# PARTY CHIEFS—SURVEYORS

Excellent opportunities for immediate permanent employment with a progressive organization, having a long range program of important engineering work. Experience essential in field surveys for highway location and design, water and sewage facilities, airports, dams, etc.

Desirable working conditions at salary commensurate with ability. Write for application blank. All replies will be held confidential and *will be promptly acknowledged.*

**CAPITOL ENGINEERING CORPORATION**
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**STRUCTURAL ENGINEERING**
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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. *Forty-first year. Write today.*
**WILSON** *Engineering Corp.*
**College House Offices - HARVARD SQUARE, CAMBRIDGE, MASS.**

(Continued from page 84)

### SELLING OPPORTUNITY OFFERED

SALES ENGINEER for large concern in construction field. Must have degree in civil engineering. Prefer person having experience in contracting engineers and contractors. Desire resident of Kentucky, as position is located in Louisville. RW-2740, Engineering News-Record.

### EMPLOYMENT SERVICE

ENGINEERS NEEDED in all fields at all levels. Salaries commensurate with experience & ability. Highly confidential service. Bring or mail 3 resumes to: Position Securing Bureau Inc. (Agency) 45 John St., N. Y. 38, N. Y.

WANTED — EXECUTIVE-Engineers-Designers-Draftsmen also Recent Graduates all lines. Architects, Chemists and Steel Men. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

### POSITIONS WANTED

CIVIL ENGINEER—Exceptional ability graduate, 23, married, 2 yrs. Field experience heavy construction, desires position with General contractor as field and office engineer. Present position excellent but work is not diversified. I want to learn General Contracting. PW-2727, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Wide experience estimating, negotiating and supervising industrial and public works construction. PW-2739, Engineering News-Record.

CONST'N SUP'T or Ass't, 30, 5 yrs. exp. in Industrial, Private and Public Works. Degree. Travel. References. Car. PW-2761, Engineering News-Record.

ESTIMATOR — TWENTY Years experience, pricing, buying, handle subcontracts, job management. Familiar C.P. F.F. Contracts. Available January. PW-2535, Engineering News-Record.

FIELD SUPERINTENDENT or general foreman 18 years experience frame, masonry, concrete. Can organize and manage any size job and crew. Age 38. Available January 1952. PW-2758, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, age 44. 20 years experience, heavy construction. Three years South America. PW-2780, Engineering News-Record.

*AVAILABLE*

**GENERAL CONSTRUCTION SUPERINTENDENT**

**Experienced in highway, airport, U. S. Flood control construction, also all types of concrete and asphalt paving and all types of sewer and water main installations, have knowledge of some bridge and industrial and structural building and remodeling of commercial stores etc. Age 42 years, college graduate, 16 years experience, will travel and relocate. Have also served as Project Manager. I am also cost conscious not afraid of long hours.**

*Write or Call*

**J. H. SMITH**
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**Telephone Hillside 3472-J**

**AVAILABLE**

Services of Architectural Firm practicing in San Francisco for 25 years. Available for correspondent or resident representative for private firms having Defense Building Contracts on West Coast. Office experienced in Public building and Government paper work. Professional record and references on request.

RA-2543, Engineering News-Record
68 Post St., San Francisco 4, Calif.

PROJECT ENGINEER, Graduate C.E., N. Y. State license. 25 years experience technical administration, planning and direction design and construction. Recently completed one year European assignment, presently employed, domestic salary $12,000. Interested preferably in position with Consulting Engineering Organization, will consider foreign assignment. PW-2760, Engineering News-Record.

REGISTERED C.E. Over 20 years engineering experience. Field and office supervision. Design and construction of earthwork, concrete-work, roads, bridges, sewers, etc. Desires new position. South, Midwest or Southwest preferred. PW-2738, Engineering News-Record.

SUCCESSFUL TOP Monumental building and heavy construction man presently in charge of all work for internationally known long established construction company desires immediate change. PW-2585, Engineering News-Record.

### BUSINESS OPPORTUNITY

**Established Engineering Business**
profitable and long established Civil Engineering and Surveying practice in suburb of New York City. Offering includes owner's house and complete record of 35 years operation. Owner, wishing to retire will make terms for payment over period of time. BO-2537, Engineering News-Record.

**WORK WANTED**

**Group of Professional Engineers and Construction Cost Accountants specializing in representing Owners on the Administration and Management of Industrial Construction Contracts, will handle your job and act as your agents anywhere in the U. S. Write for full particulars.**

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330 W. 42 St., New York 36, N. Y.

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**INVENTORS**
**READ THIS AD:**

**Nationally known manufacturer wants to buy outright or manufacture on royalty basis, your new design on lightweight steel open web bar joists. New shapes no problem. What have you to offer? Will deal direct or through your representative.**

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520 N. Michigan Ave., Chicago 11, Ill.

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**Because of the Christmas Day Holiday, December 25th, the "Searchlight" pages of the**

**December 27th Issue of**
**ENGINEERING**
**NEWS-RECORD**

**Close for press earlier than the usual weekly closing time.**

**The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.**

**FINAL CLOSING TIME**
**Display and Undisplayed Ads**
**Friday, December 14th**

**PROPOSALS**
**Thursday, December 20th**

**FOR SALE**

**D7, Series 3T 7518, correct hour meter reading 5364. New February, 1948.**

**25 PCC, 7S dozer, guards, electric starter. Just been overhauled. Excellent shape.**

**New roller assembly used possibly 600 hours; idlers just built up; rails 40%; bushings turned.**

**Cat. #12 Motor Grader, 8T 271, scarifier, hydraulic steering booster, 5000 hours; 1400x24, 20 ply rear tires, 1300x24, 8 ply front tires.**

***All excellent. Subject prior disposition.***

**CLIFFORD WATERHOUSE**
**Jackson, Mississippi**

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**NEW TRACTORS** — International and Caterpillar. With or without angledozer.
**GAR-WOOD WINCH**—To fit TD-14 & TD-18 International.

*Reply to:*
**AUBE EQUIPMENT**
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**USED • REBUILT • SALE**
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**FROM STOCK**
**Brand New & Rebuilt**
**TRANSITS & LEVELS**
**Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented**

**Midwest Representative: W. & L. E. Gurley**
**NATIONAL BLUE PRINT CO.**
**Established 1914.**
**210 S. Canal St. Chicago (6), Ill.**

**TRANSITS AND LEVELS**

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**Headquarters for REPAIRS — any make — Factory Service. We will also *buy* your old instruments or take them in *trade*.**
**A complete line of Engineering Instruments and Equipment for field or office. Write for catalog N.R. 1-12.**

**WARREN-KNIGHT CO.**
***Manufacturers of Sterling Transits and Levels***
**136 No. 12th St., Philadelphia 7, Penna.**

**SPECIALIZED REBUILDING**
of surveying and engineering instruments
All makes and models expertly repaired in modern shop. All work guaranteed
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# L.B.SMITH INC.

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### AIR COMPRESSORS

Schramm 105 cubic foot gas powered compressor on 4 steel wheels.

Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.

Gardner-Denver 180 cubic foot gas powered compressor on 4 steel wheels.

Worthington 210 cubic foot, two-stage, air-cooled, on steel wheels with Hercules diesel.

Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.

Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.

Paving breakers, jackhammers, wagon drills, tie tampers.

### QUARRY EQUIPMENT & BINS

Cedarapids 2036 AAA unit with feeder, etc.

Cedarapids Jr. Tandem roll & jaw unit.

3033 Cedarapids Hammermill, Rebuilt.

10x7 Allis-Chalmers Blake type jaw crusher.

#1 Cedarapids Kubit impact breaker.

4' x 6' Kennedy Van Saun single deck.

4' x 6' Kennedy Van Saun double deck.

3' x 6' Kennedy Van Saun triple deck.

3' x 10' Symons double deck.

42" x 24' revolving screen.

16" x 90' bucket elevator.

60-ton, 2-compartment, 8'x18' storage bin with clamshell gates.

Conveyors—18"—24"—30"—36". Also belt.

### TRUCKS—TRAILERS

1½-ton Ford with any body.

2½-ton GMC, rebuilt.

1949 White Model WC28 dump trucks, new condition.

2000-gallon tanks on semi-trailer mounting.

New and rebuilt dump bodies.

2,000 gallon tanks on semi-trailer mounting.

### GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

### GASOLINE AND DIESEL ENGINES

Buda, Hercules, Hill diesels, rebuilt.

New and rebuilt Murphy diesels, ME-4 & 46.

GM 6 and 12 cylinder diesels, practically new.

### SHOVELS—CRANES

Lorain L-50, 1-yd. diesel. New condition.

L-41 diesel powered ¾-yd shovel, rebuilt.

Brownhoist 1-yd. gas shovel and crane.

### SHOVEL & CRANE ATTACHMENTS

Lorain 40A shovel attachment complete.

P&H 203 shovel attachment.

Chain crowd Lorain 30A shovel attachment.

Lorain 40 Hi-Lift shovel attachment.

Bucyrus-Erie 1½-yd. rock bucket.

Lorain 80-820 fairleads.

### Backhoe Buckets & Attachments

Lorain 30 hoe attachment complete.

¾-yd Lorain, 40, LBS #6105. 44" cutting width.

28" outside width solid bottom type LBS #4377, good condition.

¾-yd Amsco 40" cutting width, LBS #8101.

### CLAM—DRAG—SCRAPER BUCKETS

### NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2-yd crane.

McCaffrey Model 636 for ¾-yd to 1-yd crane.

### SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.

New Lima 1-yd, Amsco, LBS #2295.

Bucyrus-Erie 1¼-yd gas air, LBS #3782, fair.

Lorain 75B, 1½-yd. manganese bucket, LBS #8538.

Lorain 75B, 1¼-yd extended lip, 1¾-yd LBS #2260.

Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS #5361.

Pettibone-Mulliken 2-yd for 3500 Manitowac LBS #5763.

Esco 2½ yd cast weld dipper with bail & teeth

### CONCRETE ROAD BUILDING & MISCELLANEOUS CONCRETE HANDLING EQUIPMENT

#### Concrete Finishers

Jaeger type "L" double screed, 10½'-12½', rebuilt.

Heltzel 10'-12' finisher, rebuilt.

Blaw-Knox gas-electric 10½'-12½', rebuilt.

2 Koehring 10'-12', rebuilt.

#### Concrete Road Forms

1220'—Heltzel 9"x8" forms with stakes.

1430'—Heltzel 10"x8" forms, with stakes.

#### Fine Grade Machines

B.B. Fine Grader for 21' width, rebuilt.

#### Form Graders—2 of each

Cleveland formgrader, new 1944, rebuilt.

Carr formgrader, new 1944, rebuilt.

### WELL DRILLS & TOOLS

Keystone 70 well drill. Good.

Sanderson-Cyclone #42 well drill, new.

Sanderson-Cyclone #44 well drill, new.

Bits—Stems—Bailers—Sockets—Etc.

### PUMPS

New Layne Bowler type 18 deep well pump.

Used and rebuilt pumps, all sizes, gasoline, electric or diesel.

### GRADERS

Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

Allis Chalmers Model D. Complete.

***Phone* HARRISBURG, PA. 7-3431**

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**L.B.SMITH INC. CAMP HILL, PA.**
**SUBURB OF HARRISBURG**

**WE OWN THE EQUIPMENT WE ADVERTISE**

# DIESEL POWER

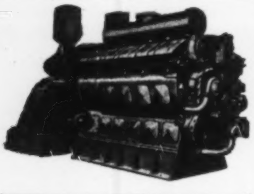
FOR

IMMEDIATE SHIPMENT

UNIT CAPACITIES—10 TO 1875 KVA

A.C.—50 AND 60 CYCLES

VARIOUS VOLTAGE



### A PARTIAL LISTING OF OUR INVENTORY

| KVA | Make | Model | HP | RPM | KVA | Make | Model | HP | RPM |
|---|---|---|---|---|---|---|---|---|---|
| 1875 | Fairbanks Morse | 33F16 | 2000 | 300 | 375 | Enterprise | DSG-6 | 450 | 450 |
| 1420 | Fairbanks Morse | 38D8¼ | 1600 | 720 | 330 | Superior | KNA | 396 | 514 |
| 1250 | General Motors | 16-278A | 1600 | 720 | 312 | General Motors | 8-268A | 450 | 1200 |
| 937.5 | General Motors | 12-567 | 1080 | 720 | 312 | Clark | MD-4 | 375 | 327 |
| 625 | Alco | 6-12½x13T | 750 | 600 | 125 | General Motors | 3-268A | 150 | 1200 |
| 425 | Baldwin | VO-6 | 510 | 450 | 75 | General Motors | 6043C | 90 | 1200 |
| 400 | Buckeye | 80 | 480 | 600 | 62.5 | Int'l Harvester | UD-18 | 76 | 1200 |

D.C. UNITS ALSO AVAILABLE

**A. G. SCHOONMAKER COMPANY, INC.**
DIESEL DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

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FOR SALE

# H Beams & Bearing Piles

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|---|---|---|---|---|---|---|
| 100 Tons | 8" | H | 31# | 40' | In | Stock |
| 100 Tons | 8" | BP | 36# | 40' | In | Stock |
| 100 Tons | 10" | BP | 42# | 40' | In | Stock |
| 100 Tons | 12" | BP | 53# | 40' | In | Stock |
| 100 Tons | 12" | H | 65# | 40' | In | Stock |

WE ARE NOW BOOKING ORDERS FOR H BEAMS AND BEARING PILES FROM 6" TO 12" IN ALL WEIGHTS.

*6 Week's Shipment From Mill*

*WRITE WIRE PHONE*

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47-29 Van Dam St. Long Island City 1, N. Y.
Stillwell 4-2720
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## PORTABLE COMPRESSORS

Sales—Rental
Rental Purchase

15 CFM LINDSAY (Gas) 2 Pneu
25 CFM LINDSAY (Gas) 2 Pneu
30 CFM WORTH. (Gas) 2 Pneu
30 CFM LINDSAY (Gas) 2 Pneu
60 CFM INGERSOLL (Gas) 2 Pneu
60 CFM WORTH. (Gas) 2 Pneu
105 CFM WORTH. (Gas) 2 Pneu
105 CFM WORTH. (Gas) 4 Pneu
160 CFM WORTH. (Gas) 2 Pneu
160 CFM WORTH. (Gas) 4 Pneu
210 CFM WORTH. (Gas) 4 Pneu
315 CFM WORTH. (Gas) 4 Pneu
315 CFM INGERSOLL (Oil) 4 Steel
500 CFM WORTH. (Diesel) 4 Pneu
575 CFM WORTH. (Diesel) 4 Pneu

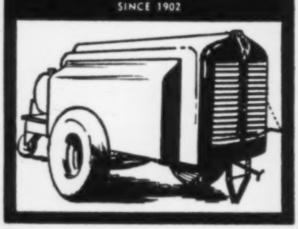
RENT—SELL—BUY

— LIKE NEW —

596 CFM—100 H.P. Motors—100# Schramm Model 420 Base Mounted — 100 H.P. Motors 3/60/220/440 — Built-in type with self contained cooling system—Three available—immediate shipment.

GET BETTER FOR LESS

**American Air Compressor Corp.**
Dell Ave. & 48th St., North Bergen, N. J.
SINCE 1902



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**Portable Crushing Plant:** Pioneer 40-V, diesel powered, new 1949.
**Crushers, Jaw:** Sizes 12" x 15" to 48" x 60".
**Crushers, Reduction Type:** Symons 2 ft. Cone, coarse bowl. Telsmith 13-B, Gyratory, 13" opening, all steel, 50 H.P. motor.
**Dryers or Kilns:** 2—10 ft. x 90 ft. heavy duty with or without auxiliary equipment, condition like NEW.
**Diesel Motor:** Caterpillar D13000 portable on skids, 122 H.P.
**Dragline:** Lima 1201, long cats, wide treads, 80 ft. boom, 3 yd. capacity, 1949.
**Cranes:** Lima 802 steel erector's Crane or dragline, 120 ft. boom, 20 ft. jib, with powered boom, condition like new. Northwest model 95, diesel, 80 ft. boom, 2½ yd. capacity, used nine months.
**Shovel, Diesel:** Lima 1201, Cummins motor, 3 yd. capacity, new 1951.
**Compressors:** Worthington DC2, 29- 18½ x 21, motor 600 H.P. synchronous, 440 volt, with all auxiliary equipment. 4—Ingersoll Rand Diesel portable, 500 cu. ft. @ 100 lbs. pressure, new 1951.
**Electric Motors:** 2—NEW 1000 H.P., 1800 RPM, 2300 volt, drip proof with automatic switch gear. UNUSED. 1—950 H.P. Hoist Motor, 3 phase, 60 cycle, 2200 volt, with all control equipment.
**Overhead Electric Crane:** 10 ton capacity, 73 ft. span, D.C. motors with runway.
**Mine Hoists:** 150 H.P., 6'6" dia., 6'8" face. 200 H.P., 72" dia., 48" face. 250 H.P., 60" dia., 72" face. 200 H.P., double drums, 8 ft. dia., 4 ft. face, one clutched. All 3 phase, 60 cycle, 2200 volt with control equipment.

**A. J. O'NEILL**
Lansdowne, Pa.
Phila. Phones: MAdison 3-8300—3-8301

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1—Burro Gas Rail Crane.
6—13TD Euclid Rear Dump 22 Ton—1948.
1—Lorain MC 414 Truck Crane—1946.
1—TC70 Link Belt Truck Crane 40' B.
1—¾ Lorain 41 Comb S&D. 1948.
2—10 Ton steel Stiff Leg Derricks.
1—6 Ton Huber 3W Roller.
1—45' Crane Boom for Link Belt LS90.
1—801 Koehring Shovel & Crane.
1—40 Ton Industrial Oil Fired Loco Crane 1943.
1—10 Ton Std. Ga. Diesel Loco.

**B. M. WEISS CO.**
Girard Trust Co. Bldg. Phila. 2, Pa.
*Rittenhouse 6-2311*

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Sizes: ⅝ to 2½ cu. yd. capacity.
Good used condition.

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Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Pile Driving Accessories
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MC-414, Truck CRANE 1949 80' boom 15' jib Power boom hoist
Backhoe attachment for B.E. 22B D6 TRAXCAVATOR #9U1118 Good
3 Hyster D8N Towing Winches
D-6 w/Cable Angledozer #8U1440
Cat D 4 with Hyd. Bull Dozer 7U6100 series
2 #49 FD Euclid Rear Dumps 7700 series
Cat D4 with Angle Dozer & Winch 5T2225
Duo-way Scoopmobile A-1 Condition
Jaeger 105CFM Air compressor. Good
Bucyrus Erie 38B Shovel 3 yrs. Bargain
D7N Hyster Towing Winch

**CHAS. M. INGERSOLL**
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## FOR SALE

40 ton Orton Diesel Locomotive Crane
30 ton Ind. Brownhoist Gas Loco. Crane
Clyde 45 ton Elec. Gantry Crane new 1949
Manitowoc 2000 Crane 1½ yd. 80 ft. bm.
65 ton Whitcomb Diesel Elec. Locomotive
8¼ x 10 Clyde 3 Drum Steam Hoist
Rex 200 Single Pumpcrete. Gas powered
Northwest 80D 2½ yd. Diesel Combination
60 HP American 3 Drum Gas Hoist

**MISSISSIPPI VALLEY EQUIPMENT CO.**
509 Locust St. St. Louis 1, Mo.

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### LOCOMOTIVE

1—Plymouth 6 Ton Gas—36" Ga.—Like New.
1—Brookville 10T-30" Ga. Diesel—Like New.
2—Whitcomb 15 Ton, 36" Ga.—Diesel.
1—Davenport 10T-36" Ga. Diesel.
1—Brookville—15 Ton—Diesel—Stdy.—Ga.
Plymouth—70 Ton—Std. Ga.—Propane Electric.
1—Plymouth 35T. Gas, Std. Ga., Very Good.
1—Whitcomb 6 Ton—36" Ga.—Diesel.

### LOCOMOTIVE CRANES—STEAM

1—Ohio—30 Ton Coal Fired. Excellent.
Industrial—50 T. 1947—Like New. Boom 120.
Burro Mod. 15—5½ Ton—Gas.
Burro Mod. 20—5½ Ton—Gas.

### MISCELLANEOUS

24 Hopper Cars—15 Ton—36" Ga.
1—American 3-Drum Gas Hoist—185 HP. Like New
1—Mundy D. D. Elect. Hoist—300 HP. 2200/3/60.
1—Flory D.D. Slope Hoist—150 H.P.—3/60/220.
Wellman D.D. Mine Hoist—700 H.P.—3/60/2200.

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## FOR SALE OR RENT—LATE MODELS

Bucyrus-Erie 44B Diesel 2 cy. Shovel, rebuilt
Lorain 80 Diesel 1-¾ cy Shovel & Crane/Dragline
Bucyrus-Erie 38B 1½ cy Shovel, 2 years old
Caterpillar D-7 bulldozer, 3T series
International TD-18 bulldozer, hydr. rebuilt
International TD-14, hydr. bulldozer, rebuilt
Critical CAT. & INT'L. Track & Engine Parts

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NEW OR FACTORY REBUILT
FOR SALE • • • FOR RENT
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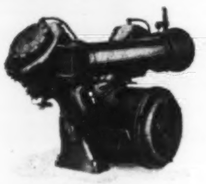

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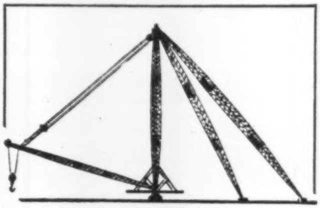
## COMPRESSORS

3—Stationary Comp. C.P. Type YCM, 2 stage G.E. Syn. 100 hp. 44v. 60 cy. 3 ph. motor, dir. con. 595 cfm. with exciter, and starting panel.
3—Stationary comp. C.P. Type YCM, 2 stage G.E. Syn. 125 hp. 440 v., 60 cy., 3 ph., motor, direct con. 686 cfm. with exciter and starting panel.
4—Stationary comp. C.P. Type YCM, 2 stage G.E. Syn. 150 hp. 440 v., 60 cy., 3 ph., motor. dir. con. 774 cfm. with exciter and starting panel.
Assorted aftercoolers, mufflers, receivers, intruments, etc.

## ELECTRIC MOTORS

1—Motor, Electric—Westinghouse 200 HP. Slip Ring Motor. Type CW8735—440 3 phase, 60 cycle—1175 RPM, B.B., splash proof, Style 1B6655, shaft extension both ends. Serial No. 1S1B6655.
1—Motor, Electric—Wagner Electric Corp. 150 H.P., Type RS1, Frame 35Y, Model 1E5BZ27, RPM 575, 440 volt, 3 ph., 60 cycle, 193 amp. Serial No. B7C841.
1—Motor, Electric, Wagner Electric Co., 150 H.P., Type RS1, Frame 35V, Model 1E5-BZ27, RI 575, 440 v., 3 ph., 60 cy., Serial Nos. C7C-1561.
6—Breakers, Air Circuit, I.T.E. Circuit Breaker Co., Phila.—Type KB "Urelite", 600 amp., 480 v., 3 pole.



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8. Lincoln Arc Welders Model SAE 200 Serial Nos. A 182986, A 185150, A 211223, A 211224, A 215261, A 215217, A 218451, A 217388.
1. Lincoln "Shield Arc" Welder Serial A 188225 300 amp.
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**SHIPPING WEIGHT 68 LBS. F.O.B. PHILA.**

A fine bodied, lusterless, enamel made to U.S. Air Corps Spec. #680—Class 20. For all wood and metal surfaces, protects against weather, rust and corrosion. For brush or spraying inside or outside, can be blended with other colors. Ideal for road equipment, scrapers, cranes, trucks, tool sheds and outbuildings. Makes fine prime coat.

**Rated Firms Open Account—Others Send Check**

**J. JACOB SHANNON & CO.**
**214 N. 22nd St., Phila. 3, Pa.**
**The Oldest Equip. House in Phila.**

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## D 6 TRACTOR

D6 Caterpillar tractor, with Cat. hydraulic bulldozer, late model, low hours, electric starter, excellent condition.

**GENERAL EQUIPMENT CO.**
**660 Burnside Ave. Inwood, L. I., N. Y.**

---

## *FOR SALE*

**Bucyrus-Erie** 38-B shovel & drag
**Bucyrus-Erie** 22-B shovel & backhoe
**Bay City** Truck Mtd. Shovel & Crane.
**Northwest** 80-D shovel
**Northwest** 95 Dragline
**Euclid** Rear dumps, 22 ton
**Caterpillar** Tractors D8 & D7

FS-2557, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

---

## FOR SALE

5" 4-stage High Pressure centrifugal Pumps powered by Waukesha gasoline engine, skid mounted, including priming mechanism. Capacity 400 GPM at 240 lbs. or 600 GPM at 192 lbs. pressure.

**FOUNDATION EQUIPMENT CORPORATION**
**38th Ave. & 10th St., L. I. City, N. Y. EXeter 2-1100**

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**FOR SALE**

4—Caterpillar DW-10 with LaPlante Scrapers new late 1946 Excellent condition.
2—Euclid 13 yd. Bottom Dumps Rebuilt, tires excellent, Cummins engines
1—Burch 32 foot Car Unloader new

**CLARK-WILCOX COMPANY**
**118 Western Ave. Boston 34, Mass.**

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*For Sale*

## GALION ROLLER

**3-wheel 5 ton—$600.00**

Located Port Trevorton, Pa., U. S. 11.
Phone Washington, D. C., Lockwood 4-7700.

**SCHALLER & HOFFMEISTER.**
**P. O. Box 310, Silver Spring, Maryland**

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## FOR SALE

2 LaPlant-Choate C104 Scrapers, 25-Yd Struck—Good Condition
1 TD18 Tractor—Good Condition

**SWORDS-McDOUGAL CO.**
**1500 N. Adams St. Peoria, Illinois**
**Phone 3-3642**

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# *PILING*

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## RENT STEEL SHEET PILING

"Faster From Foster"—the exact lengths and sections — all standard makes—of Rental Piling to meet your job needs. Also Rent: Pile Hammers and Pile Extractors.

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700 pcs Beth DP1—50 ft.
350 pcs Beth AP3—18-20 & 40 ft.
300 pcs ZP. 32—50 ft. lengths
300 pcs 14 ft. Armco Corrugated
41B & MARION 32 STEAM CRANES

**DARIEN, 60 E. 42nd St., N. Y., N. Y.**

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*We do a Nation-Wide business in*

## STEEL SHEET PILING

**IMMEDIATE SHIPMENT**

167 pcs. 60 ft. Inland I-27—Illinois
232 pcs. 50 ft. Larssen III New—Florida
250 pcs. 39-35 ft. Carn. M-116—Tenn.
291 pcs. 30 ft. Beth. DP-2—New York
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Other lengths & sections used & new at other locations in United States for rent.

We have Nation-wide reputation for effecting QUICKEST SHIPMENTS

All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt

Regardless of location of job. Wire, Write or Phone

**MISSISSIPPI VALLEY EQUIPMENT CO.**
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## STEEL SHEET PILING

**Available from N. Y. stock**
**Will also roll to size and specifications**

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## STEEL SHEET PILING

**FOR SALE**

100 Ton of Z-Section Piling approx. 25 ft. lengths.

**BASS ENGINEERING & CONSTRUCTION CO.**
**Birmingham Theatre Bldg.**
**Birmingham, Michigan**

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155 pcs. Larssen 1 Steel Sheet Piling 48'
120 pcs. Larssen 11 Steel Sheet Piling 48'

*Write Wire Phone*

**ATLANTIC PILING CORP.**
**47-29 Van Dam St., Long Island City 1, N. Y.**
**Exeter 2-1286**

## FOR SALE

3—Heil 15 Cu. Yds. motor scrapers powered by HB600 Cummins engines—$6500.00 each
1—1500 gal. Etnyre distributor trailer mounted—$1850.00
1—5 ton Buffalo Springfield tandem roller—$1950.00
3—4 cyclinder aircooled Wisconsin motors—$225.00 each
4—3" asphalt pumps
5—15 Cu. Yd. hydraulic dump bodies—$750.00 each
1—Lorain Model L-82 dragline
1—Tyler 4 x 12 2-deck vibrating screen complete—$2,000.00
2—24 x 16 Pioneer roll crushers—$4500.00 each
1—50 ton Rogers lowboy trailer—$3975.00

*Contact:*

**DICKERSON, INC.**
Monroe, N. C. Tel. 790

## FOR SALE

**In Good Mechanical Condition**
**SIZE 534 Ingersoll-Rand reversible Impact Wrenches (air motor driven)**

**FOUNDATION EQUIPMENT CORPORATION**
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## FOR SALE

**Northwest, Model 6, Backhoe.**

Serial Number 8855. Recently overhauled. Price: $30,000.00. FOB East Falls Church, Virginia.

**NANCE & VIVADELLI COMPANY**
2420 Wilson Blvd. Arlington, Va.
GLebe 7750 OWens 7749

## FOR SALE

Two C-11 electric Tournapulls, $7500.00 each. One C-Roadster, practically new, $23,000.00. One 304 Koehring Drag-line and Back-hoe, three years old, $15,000.00. One Allis-Chalmers BD-2 Road Grader, $7500.00. This equipment in perfect condition ready to go to work.

**JOHN F. WALSER**
3821 Pontiac Lake Road, Pontiac, Michigan
Telephone FEderal 2-6824

## FOR SALE

Bucyrus-Erie Mdl. 54B Shovel & Drag Lima Mdl. 802 Dragline Frehauf Lowbed Trailer 50 Ton & Sterling Diesel Tractor. Trailer has 2,000 miles on it.

FS-2556, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

## *FOR SALE*

**Seven Steel Trusses**

Approx. 82 ft. span, 16 ft. high in the center—capable of carrying a live load of forty pounds per square foot. Practically new. Apply—

**PARK STEEL & IRON CO.**
Evergreen & R.R. Aves., Bradley Beach, New Jersey

## FOR SALE

**Subject to Prior Disposition**

### Complete Earthmoving Outfit

Consisting of: One (1) IHC TD-24 Tractor with BV-3 Euclid loader (Modified) with Cummins Diesel power, Eight Euclid 13 cu. yd. Bottom Dump Trucks. Also can furnish one or two D-8 Caterpillar dozers and one or two Caterpillar #12 Auto Patrols in this package.

This outfit just completing job in Southeast U. S. and is immediately available.

**Wire, Phone or Write:**

**FINGER LAKES EQUIPMENT CORP.**
100 Greenway Ave., Syracuse, N. Y.
Phone: Syracuse 9-6605

## FOR SALE

1—Northwest 80D Serial No. 7350, Combination Shovel, Crane and Dragline, with 100 foot boom, 15 foot jib and fair leads. Murphy Diesel Engine.
1—Caterpillar D8 Angledozer Serial No. 2U1079
1—Caterpillar D8 Angledozer Serial No. 2U469
1—Caterpillar D8 Angledozer Serial No. 8R1323
1—Caterpillar D8 Angledozer Serial No. 1H2961
1—Caterpillar R4 Angledozer Serial No. 6G1165SP
2—Euclid Tractors Model 6FDT with Bottom Dump Wagons
1—Super C Tournapull Serial No. C3T2837C1F with LP Scraper, Cummins Diesel Motor

These Machines have all been overhauled within the last year and are in Excellent Condition and are real buys.

**SANCTIS CONSTRUCTION, INC.**
410 Marlow St. Pittsburgh 20, Pa.
*Walnut 1-9000*

## FOR SALE

## BULK CEMENT PLANT

Johnson Portable cement plant, capacity 373 bbls., Model #20, with 1500 lb. cement batcher. Purchased new October, 1949 and used very little on one job. Fully equipped. Location, Owego, N. Y.

**HARRISON & BURROWES, Inc.**
507 Summit Ave. Jersey City, N. J.

## SALE OR RENT

2000-B Manitowoc 25 ton crane, Cummins Diesel engine, Ind. boom hoist, late model, condition excellent.
Lorain model 77 shovel and crane 1½ yd. capacity, Cat. engine good condition.

**GENERAL EQUIPMENT CO.**
660 Burnside Ave. Inwood, L. I., N. Y.

## ACP

500 Tiffany Street
New York 59, N. Y.
LUdlow 9-4343-4

**Air Compressor and Pump Corp.**
**INDUSTRIAL and CONSTRUCTION EQUIPMENT**
*For Sale or Rent*
GARDNER DENVER DISTRIBUTORS

## FOR SALE

## CRANE, DRAGLINE

Lorain Model 820, Ser. No. 11047, Caterpillar D-13000 Engine, excellent condition.

**BASS ENGINEERING & CONSTRUCTION CO.**
Birmingham, Michigan

## FOR SALE

2—Worthington 315 c.f. Gasoline Compressors and
1—Worthington Wagon Drill, all on pneumatic tires.
1—4'x8' Air Receiver.
1—Worthington WB85 Paving Breaker.
2—#3 McK-T. Sheeting Hammers.
2—4" Labour and 5—3" Homolite self-priming centrifugal pumps.
2—2 ton Dodge Dump Trucks.
1—C.H.E. No. 32 Gasoline powered Saw Rig.

**CLEVOROCK, INC.**
420 Lexington Ave. New York 17, N. Y.

FOR SALE

## COMPLETE DREDGE OUTFIT

2—14" Dredges
3 Tenders
Tug—Derrick—Fuel Barge.

**ATLANTIC DREDGING & CONSTRUCTION CO.**
Satsuma, Florida

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**Inspecting and Testing**

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Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.

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Kingsbridge 3-5737

# Adams Motor Graders

## . . . GAITED FOR TOP PERFORMANCE

Only Adams has this exclusive combination of advantages

- **8 Overlapping Forward Speeds . . .** Flexible working range speeds work—increases output—provides high transport speeds.
- **Wide Range of Blade Positions—Without Mechanical Adjustments . . .** Saves Time in Adapting Machine to Needed Cuts.
- **Positive-Action Mechanical Controls . . .** Dependable, accurate adjustments—because they're geared . . . Easy, natural steering.
- **Ample Operating Clearances . . .** Quick, easy adaptation to work . . . Operator comfort, convenience, efficiency.
- **Fast, Easy, Servicing Plus World-Wide Dealer Service . . .** Saves time and money.

**8 overlapping forward speeds insure the right working speed for every grading operation . . .** Adams Motor Graders give you 2 more forward speeds than several machines of comparable size and power—8 forward speeds instead of 6.

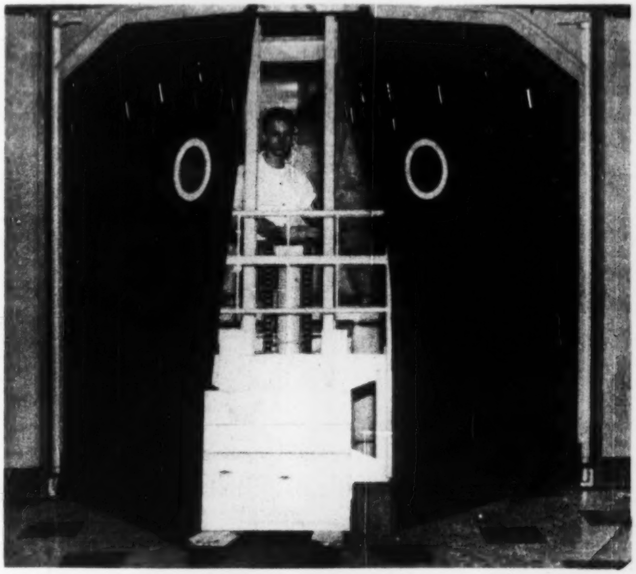
These 2 additional speeds give you an extra working speed and a higher "high"—up to 25 mph. This means greater selectivity of speeds on all types of work—an exactly *right* speed for accomplishing each grader operation at the fastest practical rate . . . plus 30 to 50% faster job-to-job transport.

Let your local Adams dealer show you how 8 forward speeds—and the other big Adams advantages—speed operations, increase efficiency, reduce costs.

*Make your next motor grader an*

**ADAMS**

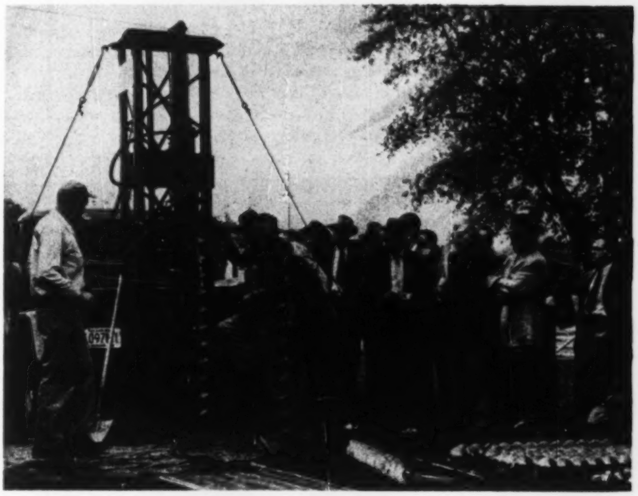
## Flexible rubber doors for plant installations



A Candor flexible door is a combination door and curtain. The main member is a 3/16-in. thick curtain of rubber, reinforced with two layers of cotton duck. The curtain is suspended in a steel frame of inverted L shape to which it is firmly secured at the top and the hinged side. A double-acting spring mechanism, concealed in the vertical tube, returns the frame to its closed position after it has been opened.

The door is pushed open by electric car or hand trucks, with no special precaution needed to hit it slowly. The rubber curtain absorbs all the shock, and vision is obtained by small round windows of Plexiglas. For resistance to oils and greases, Neoprene curtains can be furnished instead of rubber. Steel frames are supplied with a primer coat of paint, but corrosion atmospheres may necessitate that they be bonderized at slightly extra cost. CANDOR ENGINEERING COMPANY, P. O. Box 210, MONTCLAIR, N. J.

## Speedy truck-mounted rotary well drill



Under the watchful eyes of ECA, Public Health Service, Geological Survey and Defense Department officials, this new type truck-mounted rotary well drill sank a 6-in. water well 61 ft. deep in 40 minutes drilling time. In a total elapsed time of 2½ hours, the well was sunk, casing installed, pump connected, and water flowing.

Originally designed as a means of obtaining core samples, the new rig is being improved with USGS help to drill wells and at the same time take soil samples as part of a single operation.

The rig is mounted here on the back of a four-wheel-drive 1-ton pickup truck, and its power is obtained from the drive shaft of the truck through a V-belt. Specially designed 5-ft sections of auger are used. These are so designed that a truck motor can power the drill to a depth of 125 ft. Sections of durable plastic tubing—good for 50 to 60 psi pressure—form the well casing. These sections (produced by CARLON PRODUCTS CORP) are lighter and cheaper than steel casings. They are rigidly connected by chemically welding successive sections on the job with the help of a solvent. As each new section is coupled to the well casing, the solvent-coated male end is pushed firmly into a similarly coated female joint of the preceding section. The manufacturer claims that, after setting for two minutes, a joint will carry 8,000 ft of suspended casing.

Tests have shown that the rig will drill through any kind of uncemented sedimentary material, as well as thin layers of schist, soft sandstone, and Florida lime rock.

Mounted on the truck, the test rig stands 9 ft 4 in. high and weighs 800 to 900 lb. The model shown in the picture is capable of drilling holes 3 to 10 in. in dia. The unit is being retailed through WILLYS-OVERLAND dealers and any additional information may be obtained from any of these dealers.

*(Continued on next page)*

**FAST construction LESS maintenance**

**when you build with ALUMINUM**

All the facts you need to design and erect buildings using Alcoa Industrial Building Sheet have been assembled in this new book. Loading tables, application details and accessory lists, show you how you can save erection time and maintenance costs.

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BUILDING SHEET

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*Wood Preservers Since 1878*
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**PRESSURE TREATED**
TIES—POLES—PILING—LUMBER
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**Creosote or**
**Chromated Zinc Chloride**
TREATING PLANTS
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**DRILLING CONTRACTORS**
Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges,
Dams and other Heavy Structures
*Also*
Manufacturers of Diamond and Shot Core Drills, Accessories & Equipment
**SPRAGUE & HENWOOD, Inc.**
Dept. E, Scranton 2, Penna.

### Rock salt spreader

The worker in the photo above is shown dumping bags of rock salt into a new shaker designed to provide a controlled spread of coarse rock salt for snow and ice removal. It hooks over the tail gate of any truck and may be attached, removed or changed from one truck to another without alterations, use of bolts or other holding devices. Patented by the International Salt Co., Inc., it has a capacity of 250 lb and adjustable holes in the bottom through which the rock salt pours out onto a highway as well as a regulating handle to control the rate of flow through the blades. The manufacturer recommends that it be hung as far as possible to the left side of the tailgate so that it overhangs the center line of the road and distributes rock salt equally on both sides of the line. According to the manufacturer the spreading truck needs to make only one trip down the highway to cover both sides of it during an average snow or ice storm.

When set to one-half the maximum capacity of the openings, the spreader will apply coarse rock salt at a rate of 300 to 400 lb per mile of 20-ft pavement at a truck speed of approximately 15 mph. Density of application may then be regulated by changing the size of the openings; increasing or decreasing the speed of the truck. INTERNATIONAL SALT CO., INC. SCRANTON 2, PA.

### Modulating Heating Control

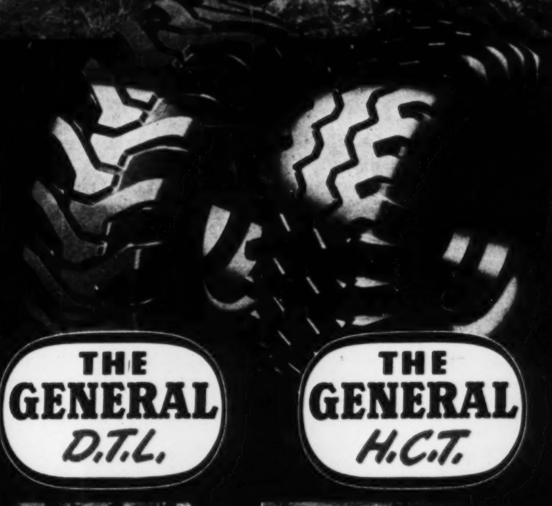
An outdoor weather reading in combination with a temperature measuring bulb in the heating system changes the rate of heat flow with every change of the weather in anticipation of the heating needs of a building with this new Weather-Flo control. A built-in fan or pump switch provides for a continuous regulated flow of heat to the building as long as weather conditions require any heating. Heating lags

(*Continued on page 98*)

# GENERALS combine Safety and Strength

## Extra Traction and Speed . . . to do More Jobs Anywhere

## *Faster! Easier! At Lower Cost!*



For off-the-road jobs where maximum traction is required. Broad, deep, sharp, self-cleaning tread lugs dig deep for positive grip on soft surfaces. No slipping, sliding.

For some work off-the-road, most work on. Deep, saw-tooth safety tread and sturdy shoulder cleats develop extra traction. Rolls smoothly, safely, stops fast.

**GENERAL H. C. T.** Thicker, tougher tread for extra traction through sand, gravel, slush, mud. More original and recap miles.

**GENERAL L. C. M.** Ideal tire for dump trucks. Broad lugs develop extra traction forward or backward.

**GENERAL INDUSTRIAL PNEUMATICS** Wide-Base tires for small equipment. More cushion, more wear.

**REQUEST GENERAL TIRES ON YOUR NEW EQUIPMENT**

"I got started right"...

"Early in my experience, I learned how important the selection of a surety could be . . .

"It was a heavy job we were after . . . one of our first big ones . . . located outside our usual working territory. We were in good shape for it, but fairly green and practically unknown beyond the county limits. A surety company with less foresight and good judgment might have backed away . . .

"*. . . but the Ætna's bond men had a refreshingly broad knowledge of the problems of our business—plus an uncanny talent for getting all the facts.*

"They wrote the bond. We got the job, too . . . and the prestige of the Ætna name didn't exactly hurt us any with the awarding authorities.

"Through the years, we've had many reasons to be grateful for the promptness, experience, and all 'round reliability of the Ætna Casualty and Surety Company—and they've never given *us* reason to doubt the wisdom of our choice."

**Coast to coast . . . you can count on The Ætna Casualty and Surety Company for prompt, efficient contract bond service.**

*"No Job too Big... No Job too Small"*

ÆTNA

ÆTNA CASUALTY AND SURETY COMPANY

*The Ætna Life Affiliated Companies write practically every form of insurance and bonding protection*

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| Ætna Life Insurance Company | Automobile Insurance Company |
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Hartford 15, Connecticut

caused by overshooting and underheating are eliminated, according to the manufacturer.

Completely adjustable on the job for different heating system design temperatures, different operating temperature ranges, different minimum temperatures and heat cutoff makes this a universal unit for all jobs. Dial markings on each of four adjustment dials are calibrated in actual temperature settings.

It has been designed for operation with all fuels and with all heating systems including radiant panel systems. AUTOMATIC DEVICES CO. INC., WESTERN SPRINGS, ILLINOIS.

## German submersible sludge pump

Fitted with a specially built electric motor for underwater operations, this new submersible sludge pump was shown for the first time at this year's German Construction Fair at Hanover, Germany. It consists of a sludge-water centrifugal pump with directly-coupled underwater motor in a vertical position as shown. The motor is said to be watertight and pit drainage is most complete, since the pump fits underneath the motor. The pump itself remains underwater all the time, eliminating need for a suction line. The type K-S 50 shown here can handle anywhere from 55 to 110 gallons per minute with a variable head from 66 to 132 feet. The motor is rated at 4 hp, pipe connections at 2" and the entire weight of the pump and motor together is 210 pounds.

(*Continued on page 101*)

# His Records Prove It's Good Wire Rope

This man knows that his Bethlehem rope is giving him a good return on every dollar it cost him.

He isn't just guessing. He keeps records on the doings of all his wire ropes; figures that tell him the date they go to work, how much they accomplish, and when they're replaced. From his figures he can see which brand is *doing the most* for him over a period of time. He doesn't rely on general impressions or rough estimates. He *knows!*

Bethlehem urges that all users of wire rope do likewise—keep records of wire rope performance, expressed in units of work. How many ton-miles a rope accounts for; how many yards of rock it moves, how many cars of coal it hauls up a slope, etc. By doing so, the user can compare one brand against another; see for himself which brand is costing him the *least* for the actual work it does.

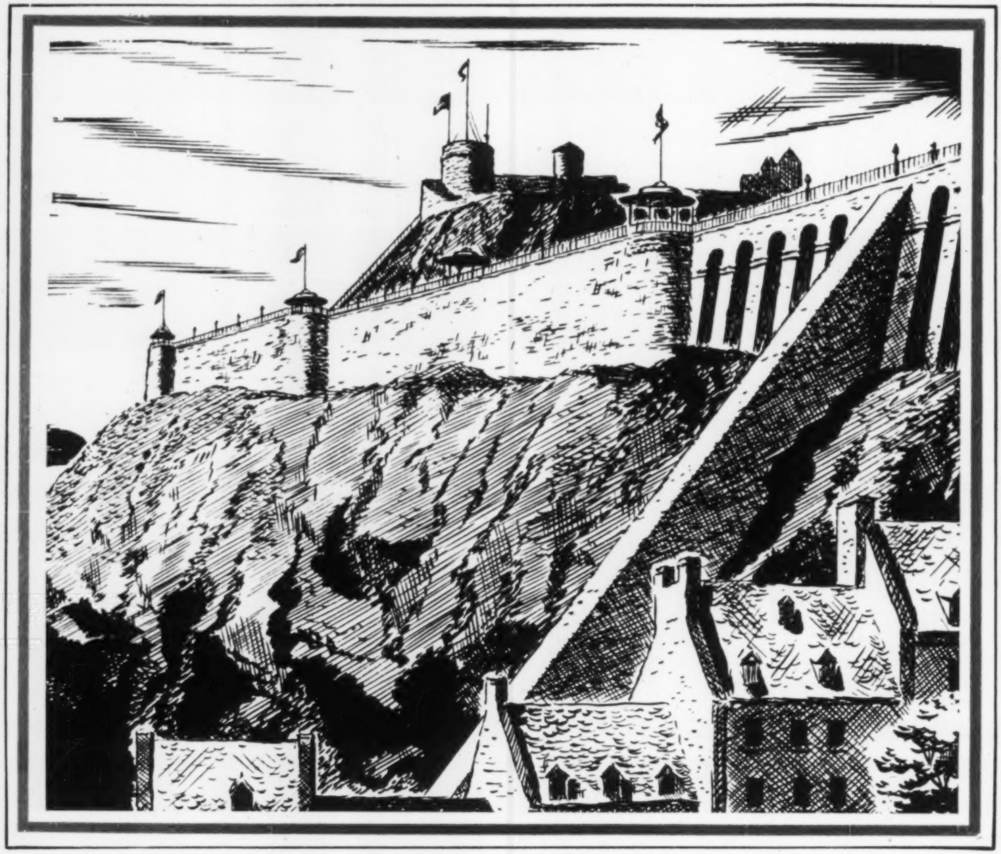
We know that in any such comparisons, Bethlehem wire rope will prove an outstanding value. Stack it against the field; keep your own figures. They'll tell you, in black and white, that a dollar invested in Bethlehem rope buys a mighty big dollar's worth of service.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

**On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation**

**LET YOUR RECORDS TELL YOU!**

BETHLEHEM
WIRE ROPE
BETHLEHEM STEEL



*Quebec's famous Citadel, over 330 feet above the St. Lawrence, as it looked 100 years ago*

Romantic Quebec has a cast iron gas main in service that was installed over a century ago. Reminiscent of those days are the horse-drawn vehicles for nostalgic tourists. Now, how could the gas engineers have foreseen the advent of trailer-trucks and giant buses, and the resultant traffic-shock? . . . That sewers and conduits for utility services would ultimately share the underground at risk of soil disturbances? Yet that gallant old cast iron main has had the necessary shock-strength and beam strength. Effective resistance to corrosion, as well as strength, are *must* factors of long life in pipe to be laid under city streets. This is shown by the fact that cast iron water and gas mains, laid over 100 years ago, are still serving in the streets of more than 30 cities in the United States and Canada.

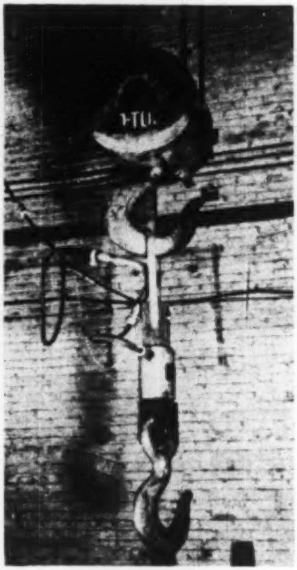
**United States Pipe and Foundry Co.,**
**General Offices, Burlington, N. J.**
**Plants and Sales Offices Throughout the U. S. A.**

U.S.
cast iron
PIPE
[illegible]

NUMBER FIVE OF A SERIES

## New Products . . .

The motor can be operated on 220 or 380 volts; on request it can be supplied for every voltage up to 500 volts. Produced by EMU, UNTERWASSERPUMPEN G.m.b.H., HOFF, GERMANY.



### Electronic scale and recorder

Between the main hook and the load hook pictured above, there is a new electronic scale and recorder containing a strain gage Baldwin cell.

The Baldwin cell incorporates a well-known strain gage principle in which mechanical stress due to applying the load causes a change in electrical resistance of the wire of the strain gage. This is translated through the wire in the photo above into electronic sources which both indicate and record the load at any point desired, even remotely distant from the actual weighing operation. In this way a close accurate check is kept on individual lifts to see that they do not exceed the safety limit. In addition total lift will be reported for progress reports or to check against railroad car capacities, for example.

In one installation the weighmaster, sitting at his station, can read the weight of any shipment or lift being made in the yard down below on the track. STREETER AMET COMPANY, 4101 NORTH RAVENSWOOD AVENUE, CHICAGO 13, ILLINOIS.

(Continued on page 103)

STEEL
RUST INHIBITOR
ASPHALT PLASTICS
MICA
MICA makes the DIFFERENCE
Triple PROTECTED STEEL
Get Plasteel
ROOFING and SIDING
Protection NOW!

Let us QUOTE you from STOCK

Mica makes a BIG difference! And experienced engineers, contractors and maintenance men know that PLASTEEL — *and only Plasteel* — gives them this BIG difference — MICA'S permanent protection! Mica resists the toughest climatic and atmospheric conditions. Mica needs no paint, no repairs. Mica reflects solar rays. Mica is attractive. Mica prolongs the life of your buildings. Write for details.

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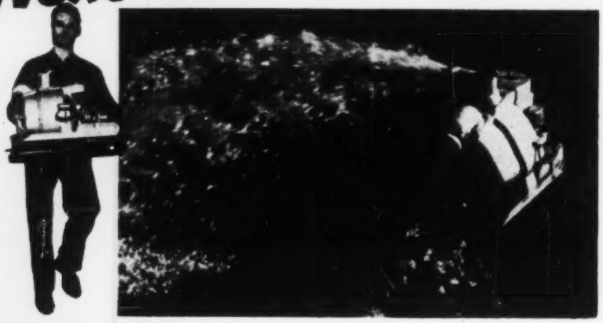

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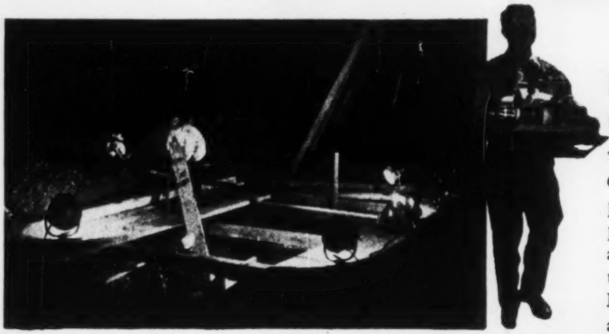

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## MANUFACTURERS' PUBLICATIONS

**Two new pumps**—Vane-type rotary pumps and Freeflo pumps for sump, sewage and drainage service are available from Worthington. The first (W-485-B1) is a 4-page bulletin describing 6 models in 8 sizes. They include pipe openings from 2 to 12 suction inches, and 2 to 10 discharge inches. Nominal ratings include capacities from 25 to 1,000 gpm and speeds from 850 to 210 rpm. These are positive displacement, sliding vane type in which the pressure of a liquid being pumped maintains contact of the vanes against the liner. The second (W-317-B12) are wet-pit pumps and are said to have non-clogging sewage pump impellers capable of passing solids and stringy material. Unlike most wet-pit pumps, these have a stuffing box above the impeller and the pump bearings are above and separate from the box. Since the stuffing box is normally inaccessible, it is equipped with a U-cup packing which requires no adjustment and which has proved its success in vertical turbine pumps handling sandy water. A request on company letterhead will bring a copy of either bulletin from WORTHINGTON PUMP AND MACHINERY CORPORATION, HARRISON, N. J.

**Coal and ash handling equipment for power plants**—A new 44-page book, No. 2410, is now available for distribution. It contains helpful layout drawings and interesting photographs of actual installations. Pictures include installations at both large and small public utility, industrial and public building power plants. Sections in the book cover unloading coal, auxiliary unloading, coal storage and reclaiming, crushers, transporting and distributing equipment, ash handling, and water intake screens. LINK-BELT COMPANY, 307 N. MICHIGAN AVE., CHICAGO 1, ILLINOIS.

**What do G. M. diesels do?**—is the title of a booklet which describes the many uses diesel engines fulfill in our modern economy. This novel booklet is written in rhyme and illustrated by drawings of locomotives, buses, boats, power shovels, saw mills, and many other pieces of essential equipment commonly powered by diesel engines. Copies are available to individuals, schools, libraries, reception rooms, etc. from DETROIT DIESEL ENGINE DIVISION, GENERAL MOTORS CORPORATION, DETROIT 28, MICHIGAN.

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# Coming: How to run Missouri Basin

Possible solution to some of the administrative problems of developing the Missouri River Basin may come next month, when a new "Missouri River Commission" plan will be submitted to the existing policy making body—the 30-member Missouri River States Committee.

To be presented by Governor Val Peterson of Nebraska, the new plan is result of a survey by the Council of State Governments, to determine the type of over-all organization needed to handle the administration of Army Engineer and Bureau of Reclamation projects that are completed in the vast river basin.

In thumbnail, this is the plan: A new commission would be organized (through a compact between states and the federal government) to consist of 11 members—one from each of the ten states involved and one representing the federal government. This group would centralize administration of the projects built in the basin, but would not attempt to centralize the separate functions of the two federal agencies building the works. It would exercise "administrative discretion" over the management of the main-stem and tributary reservoirs, and would also look to the eventual management of the entire basin once the work now in progress or planned is completed.

• **Answer to authority?**—The plan is looked upon by many as the states' answer to the many proposals for a federal basin authority to undertake the tremendous river basin development—a plan violently opposed by the states-rights-conscious Middle West.

Growing out of a request by the Missouri River States Committee two years ago, the plan is certainly an alternative to both a valley authority or the proposal of the Hoover Commission that all such projects to be placed under the aegis of some single U. S. construction agency.

It would also supersede the voluntary cooperative program now in effect, which includes the Missouri River States Committee (the governor and two representatives of each state) and a secondary policy group—the Missouri Basin Inter-Agency Committee (five governors from basin states, and representatives of the Department of Interior, Defense, Agriculture, Commerce, and the Public Health Service).

On the new committee, each state representative would have one vote, the federal representative 10 votes, to balance the power.

• **History**—First agreement on development for the Missouri River basin came in 1944 as the "Pick-Sloan" plan. It was a climax to a long dispute between the Army engineers and the Reclamation Bureau, each of which had sponsored separate plans for basin work—engineers concentrating on flood control and navigation works, reclamation on hydro power and irrigation project.

The Pick-Sloan plan was a compromise between these two viewpoints, and as finally prepared included 138 dams and reservoirs (mostly multiple purpose) to impound a total of 110 million acre-ft at capacity, generate 13 billion kwh of electric power, and providing irrigation for more than 6 million acres of land (five-sixths of which would be new land). Flood protection levees and dikes, and a Missouri navigation channel up to Sioux City, Iowa, are also part of the program.

• **Reasons**—Many of the reasons for the demand for a new administrative setup can be pinned to the controversy that has resulted over the Pick-Sloan plan's concept.

One viewpoint is that Pick-Sloan refers only to the engineer-reclamation projects. But federal agency officials have envisioned the plan as an all-inclusive program which seeks development of the basin in all possible ways by any of the agencies of the federal government that may be involved, now or in the future.

Added to this basic difference of viewpoint has been the vociferous demand from the basin states for an active part in the planning, and for some sort of an over-all coordinating body to plan all phases of water use and conservation throughout the vast area.

Further, the necessarily cumbersome machinery of such large groups as the inter-agency committee and the states committee has made for additional slowness and confusion.

**VAL PETERSON, Governor of Nebraska, is chairman of the Missouri River States Committee that requested study of a "modified" compact plan for the Basin.**

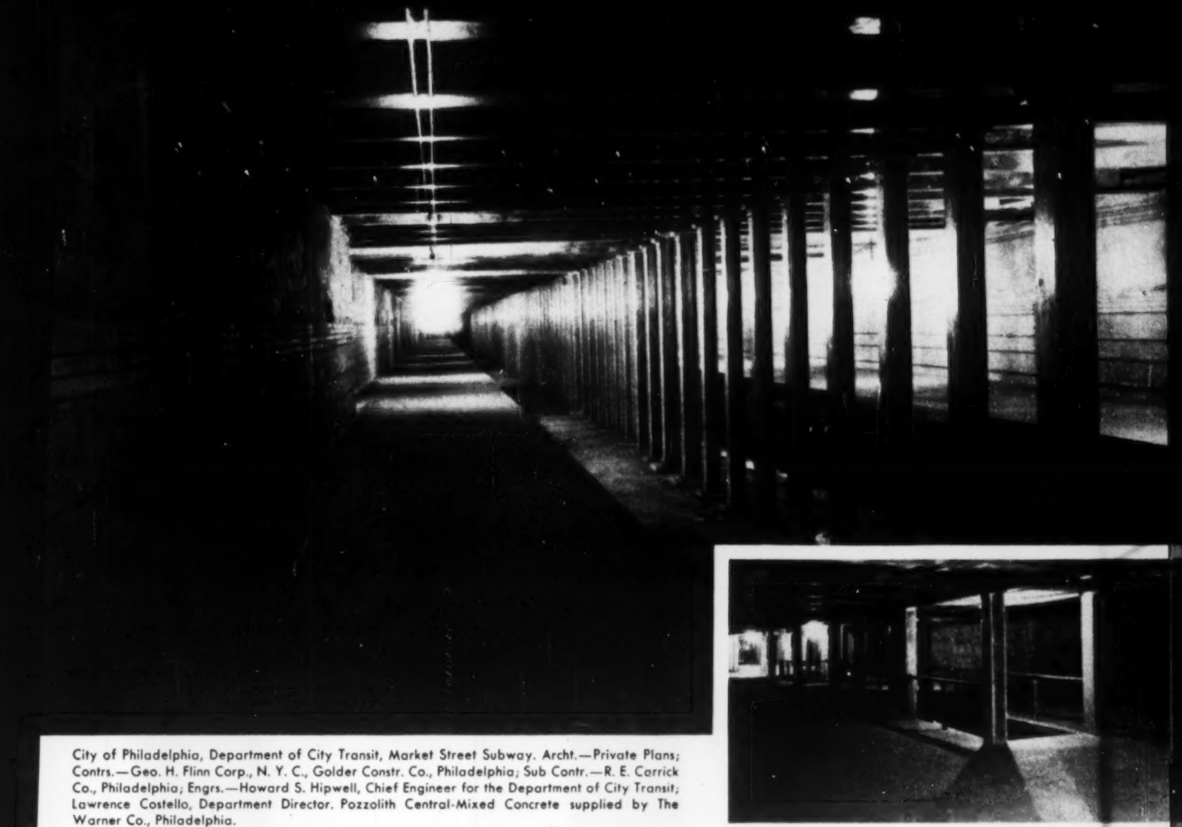
(Some idea of the vastness of the problem is contained in a recent report of the Inter-Agency committee, after a study of the 2,400 miles of meandering river and tributaries that make up the basin. Average annual flow of the river at Sioux City, Iowa, is 24.6 million acre-ft, average annual water requirements of this basin plan would range from 16.5 million acre-ft in 1960 to 22.8 million acre-ft by the year 2000. Such a draw-down of total water flow in the stream would present serious problems for municipalities and industry that draw on the river for water supply and using it to carry off sewage effluent.)

• **Care needed**—Reinforcing their arguments, the states will say in their presentation:

"Other programs (than management of reservoirs and tributaries) related to the development of the basin are equally important in achieving the long-range goal of economic growth and stability for the region. Soil conservation and watershed management, for example, fall into this category.

Such programs are indispensable . . . and must be fitted carefully into the total development picture.

"So far the operation of storage facilities has not been much of a problem. But as projects are finished and additional storage is created, the picture will change. Each new facility must be embraced in the intricate basin-wide system. Add to this the growth of agricultural and industrial capacity, and the complexity increases."



City of Philadelphia, Department of City Transit, Market Street Subway. Archt.—Private Plans; Contrs.—Geo. H. Flinn Corp., N. Y. C., Golder Constr. Co., Philadelphia; Sub Contr.—R. E. Carrick Co., Philadelphia; Engrs.—Howard S. Hipwell, Chief Engineer for the Department of City Transit; Lawrence Costello, Department Director. Pozzolith Central-Mixed Concrete supplied by The Warner Co., Philadelphia.

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Further evidence of the superiority of concrete produced with Pozzolith is the series of 50 cylinder tests made on this job. With a specified 3,000 lbs. concrete, Pozzolith Concrete averaged 3,210 p.s.i. for 7 days; 4,642 p.s.i. for 28 days, with many over 5,000 p.s.i.*

Whatever your type of job — whether industrial plant, reservoir, sewage treatment plant, dam, bridge, filtration plant, tunnel or housing project — Pozzolith Concrete provides important construction and service advantages.

Pozzolith produces these advantages — *at lower cost than by any other means* — because it disperses cement, reduces water, entrains the optimum amount of air and conforms with the water-cement ratio law.

*Full information and literature on request.*

**From article in Engineering News-Record — October 11, 1951.*

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# Wyoming constructs 21-mile State Highway project

## with TEXACO ASPHALT PRODUCTS

(Top) Laying hot-mix Texaco Asphaltic Concrete wearing surface over crushed gravel base on U. S. 85 between Lusk and Newcastle, Wyo. . . . (center) Seal coat of RC-4 Cutback Asphalt being covered with stone chips . . . (bottom) Completed pavement on U.S. 85.

The Summit Construction Company of Rapid City, S. D. was the contractor.

The Wyoming State Highway Department employed flexible-type construction throughout, in building this section of U. S. 85, one of its main routes. For sub-base, the State used 8 inches of gravel, on which was laid a 6-inch base of crushed gravel.

Texaco Asphalt Cement and Cutback Asphalts then were used to provide the highway with a durable, waterproof wearing surface. After priming the base with MC-1 Cutback, a 2-inch compacted thickness of resilient, heavy-duty Texaco Asphaltic Concrete was laid, using a 120-150 penetration asphalt in the mix. To seal the pavement, RC-4 Cutback was applied, covered with stone chips and rolled.

Whether they were constructing new highways or maintaining existing routes, America's road builders have been relying on the dependable performance of Texaco Asphalt products for over 45 years. Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils perform a well-rounded service for the road builder. They include a product for every purpose—heavy-duty paving, low-cost surfacing, surface-treatment and patching. For useful information on the variety of road and street improvement types possible with Texaco Asphalt products, write for booklets, "Texaco Asphalt Paving—Plant-mixed Types" and "Road Building with Texaco Asphalt by the Pressure Distributor Method."

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